

Dictionaries. - [Trades, Professions, &c.
English]

MILITARY DICTIONARY,

x

Explaining and Describing the

8839.a.80.

Technical Terms, Phrases, Works, and Machines,

USED IN

THE SCIENCE OF WAR;

Embellished with COPPER - PLATES

OF

All the Common Works used

IN

MILITARY ARCHITECTURE:

AS WELL AS

The Utensils employed in Attacks and Defence;

WITH

References for their Explanation:

AND

A N I N T R O D U C T I O N

T O

F O R T I F I C A T I O N .

L O N D O N,

Printed for G. Robinson, and Fielding and Walker, in Pater-
noster-Row.

MDCCLXXVIII.

MILITARY DICTIONARY

Explaining and illustrating the

Technical Terms, &c. &c. &c.



THE SOCIETY OF WAR

Embellished with Colours &c.

At the General War Office

MILITARY ARCHITECTURE

As War

and the General War Office

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Reference for the War Office

MILITARY ARCHITECTURE

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Reference for the War Office

MILITARY ARCHITECTURE

INTRODUCTION.

IT is a fruitless enquiry to search into Antiquity, to find out the periods wherein the numerous machines, used by the antient warriors, were first invented, it being almost an impossible thing to determine : but we may reasonably conclude, that the sword and bow may claim the precedence; for we find in history, both sacred and prophane, that they were used in the most early ages of the world, and by the most barbarous nations and remote people. Nay, indeed, history does not even acquaint us with the name of the first inventor of fortification. We may presume that in the first ages of the world prudence and necessity induced men to the practice of this art. That at first they defended themselves and their flocks within inclosures made of the trunks and branches of trees mixed with earth. Then, when insolence and injustice came to some height, the more peaceable associated together, forsook their habitations in the open fields, and built places of safety called towns, which they surrounded with walls, to prevent surprise. And not only so, but, to prevent hostile attempts,

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tempts, they erected little walls or parapets within the larger walls, behind which they defended themselves with their arrows, at the same time covering themselves from those of the enemy, and opposing their approaches. After this, the better to facilitate the execution with their arrows, they made use of port-holes at proper distances in these parapets. The besiegers, to defend themselves from these holes, were covered with shields and bucklers, whereby they might approach in safety the foot of the walls, and then scale them: and in order to destroy these walls, they invented battering rams, and wooden machines armed with iron; which being suspended, and driven by the force of men, beat down the walls, made a breach, and through this the assault was facilitated. To obviate the effect of these engines, the besieged made the foot of their walls with a talus or slope; but as the besiegers might, for all this, with pick-axes, hammers, &c. break down the walls, the besieged made their parapets jut out in a salient angle, under which they had a port-cullis, to throw stones and fire upon the head of the besiegers, that prevented a sap or breach in the walls. The besiegers, to favour their approaches and post themselves at the foot of the wall, invented, as a principal engine, wooden galleries that were moveable upon wheels and covered at top, under which they worked their battering-rams, or covered such

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as were employed about the demolition of the wall. To obviate this, the besieged surrounded the place with a ditch, the depth of which prevented the approaches of the enemy's engines. The besiegers endeavoured to fill up the ditch, notwithstanding all opposition from the holes and port-cullis, for which purpose they invented several machines to throw stones into the defences of the place. As till then the walls and ramparts were surrounded with circular, or rather several right lines, that only formed saliant angles, and were but a bad defence for the ditch: therefore they made these lines into saliant and returning angles quite round; but still there was a space at the foot of the returning angle, which the besieged could not defend on account of its height; and, therefore, they invented towers at each saliant angle that defended the returning angle. But, as arrows are shot off in a right line, and as the convexity of round towers could not be seen nor flanked lengthwise, they invented square towers that were only saliant angles, an arrow-shot distant from each other, and these they erected quite round the place. Afterwards the foot of these towers was surrounded with a little foot-track covered with a wall, to hinder a descent into the ditch, and this has since been called *fausse braye*. The besiegers, perceiving that these towers opposed their approaches, likewise raised towers that were higher upon the outer edge of the ditch which they called

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counterscarps. From these posts they discovered the besieged in their towers, and drove them from thence with stones, arrows, javelins, and other engines, till they sent a detachment to scale the walls and make themselves masters of them.

The old Greeks and Romans, who borrowed both their offensive and defensive arms from the people of the East, fortified their cities almost in the same manner with fosses, curtains, and towers. And we find that the best towns of the ancients were situated upon eminences. Cæsar, in book vii. of his war with the Gauls, describes the walls of the city of Bourges or Bruges, from which we may form some idea of the ancient method of fortification.

The above manner of attacking and defending places continued till about 1378, when Bertold Schwart, a Cordelier friar, found out the secret of gun-powder, though some are of opinion that the invention is owing to the Chinese. Immediately men applied themselves to discover the different uses in which powder might be employed. The musket was first invented, and afterwards the cannon. Then the method of fortification was altered, but at first giving the ramparts and towers more thickness and more strength. And the besieged, observing that round towers and even square ones had always some place that was not seen from the body of the fortress, and that the miners of the besiegers might carry on their
works

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works without any danger from the fire of the place, changed the form of their towers, by making them terminate in a point towards the country, which exposed the besiegers ; they also diminished the height of these towers, increased their solidity, and left open the ground they surrounded. In this state they were called bastions, where they placed part of the garrison as a guard, and planted their batteries.

There can be no comparison stated between the ancient and modern method of fortification, because their manner of attacking and defending is entirely different.

The moderns have retained all they could after the ancients ; the fire-arms have obliged them to use other precautions ; but have invented nothing that would have been of use to the ancients. We have borrowed from them the breadth and depth of the ditches, the thickness of the walls, the towers to flank the curtains, the palisadoes, the intrenchments within the ramparts and towers, the advantage of many flanks, in multiplying of which only modern fortification consists ; and this fire-arms make the more easy to execute.

Fortification, according to the modern methods, is either regular or irregular.

Regular fortification, is that built in a regular polygon ; the sides and angles of which are all equal, being commonly about a musket shot from each other.

Irregular fortification, on the contrary, is that where the sides and angles are not uniform,

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equidistant, or equal; which is owing to the irregularity of the ground, vallies, rivers, hills, and the like.

The principal maxims of fortification are these: 1. That every part of the works be seen and defended by other parts, so that the enemy can lodge no where without being exposed to the fire of the place. 2. A fortress should command all places round it; and therefore all the out-works ought to be lower than the body of the place. 3. The works farthest from the centre ought always to be open to those more near. 4. No line of defence should exceed a point-blank musket-shot, which is about an hundred and twenty, or an hundred and twenty five fathoms. 5. The more acute the angle at the center is, the stronger will be the place. 6. In great places, dry trenches are preferable to those filled with water, because sallies, retreats, and succours, are frequently necessary; but in small fortresses, water-trenches, that cannot be drained are best, as standing in need of no sallies, &c.

The necessity of building fortresses, and the manner of chusing the most proper situations for such works in all states whatever, appears from the innate principle self-preservation; for a powerful nation has always powerful enemies; so that, by the loss of a battle, the whole country is in danger, if the remainder of the routed army has no place of safety to retire to, where they may rally and receive succours,

succours, either from their allies, or new raised troops from that part of the country, which the enemy is not yet master of.

It has often happened, that, after an army has been defeated, it has received such supplies in a place of safety, as not only to be enabled to secure their country, but to drive the victorious army out of the field with considerable loss; of which there are many instances in both ancient and modern history. Whereas, if an army is once become victorious in a country destitute of fortresses, it soon is enabled to master the whole.

An instance of this kind happened here in England; for, had there been some good fortified places, when William the Conqueror entered this country, it would not have been lost by the gaining one battle; and had the city of Genoa been fortified, the Austrians could not have taken it at once, and been masters of the whole state, as they did in 1746; in short, were it not for the many fortified places in Flanders, the Austrian dominions in that country would have been lost long ago.

In small states and republics, they are no less necessary, than in great kingdoms, in order to resist a powerful enemy, till their allies can come to their assistance. To this it may be objected, that fortified places in a free state, may be the means of enslaving it by some am-

bitious and powerful man, assisted by a neighbouring prince; but, as no instance of this kind is recorded in history, and the contrary is evident from the states of Holland, who have many fortified places, though they have preserved their liberty, ever since their first separation from the Spaniards, it is evident, that this objection has no foundation.

Maritime powers, as England, Sardinia, Sicily, &c. no less require fortified places; for an enemy may, by surprize, invade them, notwithstanding the militia of the country, or a superiority of naval force, and lay waste a great track of land.

With regard to the situation of a fortress, it must depend chiefly on the reasons for which it is built; if they are intended to promote or protect trade, they must be erected near the sea, lakes, navigable rivers or channels; if they are designed to guard a pass or inlet into a country, they should be placed on hills or high grounds, that from thence they may secure and defend that pass, and not be commanded by any other adjacent hill. If they are intended to secure a country from an invasion, they must be situated in such a manner, that the enemy must attack them, before he can advance any further; and, in case he should pass by, they may cut off his communication with his own country, whereby his convoys may become precarious and difficult,
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and therefore must either besiege them, or not advance any further.

In islands, the best situations are on the coasts, and in such places where an enemy may easily land, and where the garrison has a safe communication with some inland town, to receive subsistence and succours in case of an attack; or if there are any large rivers that empty themselves into the sea, or harbours deep enough for large ships to enter, there should always be one or more fortresses built near them, in such places as to prevent ships from entering, without suffering greatly from their cannon.

In an island of no great extent, whose coast is of an easy access in most parts, and where it is impossible to fortify every one, the best situation for a fortress is near the middle of the island, on a rising ground; because troops may be sent from thence to any part, to oppose the landing of an enemy; but this fortress should be pretty large, that, in time of need, the inhabitants of the island may retire into it, with their cattle and most valuable effects, and assist in defending the place, until the enemy is obliged to retire, either for want of provision, or having no hopes of making himself master of the place.

But, if the island be considerable, it is not sufficient to build fortresses, near the most convenient landing places, but there should also be some built in the passes, to prevent an enemy from penetrating farther into the country, in
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case he should find an opportunity to land, notwithstanding the forts on the coast, or, at least, to stop his progress long enough for the country to rise and oppose him.

In small states that lie in an open country, which cannot afford the expences of building many fortresses, and are not able to provide them, when built, with able garrisons, military stores, and provisions; the best way is to fortify their capital, which being made spacious, may serve as a retreat to the inhabitants in time of danger with their wealth and cattle, until the succours of their allies arrive.

If a fortress be built near a river, lake, or the sea, it must be considered whether it should stand quite close to the water's side, or at some distance, so as the works may not be battered by ships; whether an enemy may easily land thereabouts, and attack it by land; whether it is possible for ships to come close or not. If there be depth of water sufficient for ships to come close to the walls, the parapets must be made high, and those that can be seen from the main top, covered above with canvass, planks, or any thing else in time of a siege, to conceal the troops behind them.

When a fort stands so near the water, that it may be battered from the ships, it is in danger of being soon destroyed by the superiority of their fire. On the contrary, when the water is so shallow, that the ships cannot come near enough to batter in breach, care must be taken

to prevent the enemy's landing in boats, and storming of it by land; in order to this, redoubts and batteries must be fortified all round with a good wall and ditch, that they may not be surprised in the rear.

In a place where there is an harbour, some parts or other of the fortress should command it, if possible; for, though redoubts and batteries may be erected to defend its entrance, yet if the enemy can destroy some, and pass by others, ships may easily enter: and as these defences are at some distance from the fortress, they are generally taken either by stratagem or storm, as being separated from the garrison, and not easily relieved. But, if part of the fortress commands the harbour, the ships can never ride secure in it, until the place is taken, which is all that can be expected.

The entrance should not, however, by any means, be neglected; but wherever there is a point of land that commands the approach of an enemy, it should be carefully secured by some work or other; and as it often happens that small rocky islands lie in the entrance, which, when properly fortified, are very advantageous in the defence of it, they should not on any consideration be neglected. For nothing conduces so much to the safety of a place, situated near the sea, or a navigable river, as those works, which keep the enemy's fleet at a distance, since by that means their chief strength is of no service

vice to them; and, though they should make a descent in some part or other, with a few small pieces of artillery, they may be easily repulsed by the garrison. As these kinds of situations are the most useful to a trading nation, I have dwelt the longer on the best manner of securing them.

When an old fortress is to be rebuilt, the engineer ought not to rely too much on the capacity of him who first erected it; he should well consider whether there is not any other situation thereabouts, that might be better than the former; whether the old works are properly adapted to the nature of the ground; how much expence will be saved by building upon the old foundations; whether it is too big or too little; whether following partly the old plan, and building the rest in a different manner, would not be better than to follow it in all its parts. In short, he should consider attentively every minute circumstance, in order to form a true idea of the situation, the figure of the works, and the consequences resulting therefrom, before he comes to an ultimate determination.

As the variety of nature is infinite, so it is impossible to describe all the different situations where the fortresses may be built: it requires the greatest skill and knowledge to fix upon such as may best answer all the different expectations, and, as the building and maintaining them,

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them, is attended with very great expences, they become heavy burthens to a nation, when they do not answer the intention for which they were built.

Fortification is better taught by representation than by discourse, and therefore we have laid down all the parts of it in the two cuts hereto annexed; in the first upon a plane, and in the second, by an orthographical section, or profile, which are explained according to the references, and more fully under the respective articles in the subsequent Dictionary.

EXPLAⁿ

EXPLANATION of the References in the Plates
of FORTIFICATIONS and ATTACKS, and MI-
LITARY UTENSILS.

PLATE I.

- A. *THE Town, an Irregular Fortification.*
B. *The Citadel, a Regular Pentagon.*
C. *A Horn Work.*
D. *A Crown Work.*
E. *A Single Tenaille.*
F. *A Double Tenaille.*
G. *A Priest's Bonnet.*
H. *A Swallow's Tail.*
I. *A Counter Guard.*
K. *A Raveline.*
L. *A Half Moon.*
M. *Two Lunettes.*
N. N. *Tenailles in the Foss.*
O. *A Horse Shoe.*
P. *A Bonnet.*
Q. *A Regular Bastion.*
R. *An Irregular Bastion.*
S. *A Deformed Bastion.*
T. *A Flat Bastion.*
U. *A Demi Bastion.*
W. *A Retrenchment.*
X. *A Retirade.*
Y. *Redans, or Indented Works.*
Z. *An Envelope, or Sillon.*
a. b. *The Interior Poligon.*
c. d. *The Exterior Poligon.*
e. f. *A Curtin.*

EXPLANATION OF THE PLATES. xix

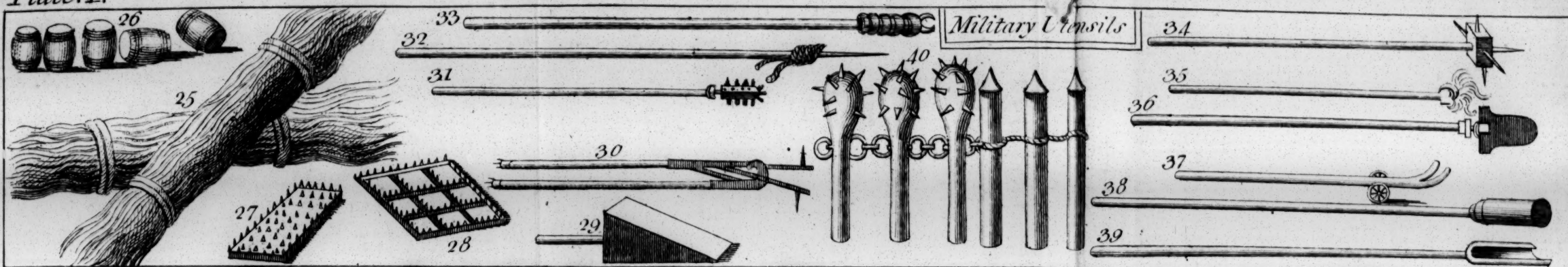
- e. g. *A Flank.*
- c. g. *A Face,*
- e. h. *The Gorge.*
- f. e. g. *Angle of the Curtin.*
- e. g. c. *Angle of the Shoulder.*
- g. c. i. *The Flanked Angle.*
- a. b. k. *Angle of the Poligon.*
- l. m. d. *Angle of the Tenaille.*
- c. z. *Line of Defence Razant.*
- c. fs. *Line of Defence Fichant.*
- fs. z. *The Second Flank.*
- r. c. *The Capital.*
- p. *Cazemates.*
- q. *Orillons.*
- n. *A Shoulder.*
- r. *A Cavalier.*
- o. *A Platform.*
- t. *A Coffre.*
- s. *A Capomere.*
- u. *A Traverse.*
- v. *The Covert Way, and Counterscarp.*
- w. *Places of Arms.*
- x. *The Glacis.*
- y. *The Advance Foss, Ditch or Moat.*
- 1. *Lines of Circumvallation.*
- 2. *Lines of Contravallation.*
- 3. *Part of the Camp.*
- 4. *Park of Artillery.*
- 5. *The Head Quarters.*
- 6. *Rising Grounds.*
- 7. *Opening of the Trenches, by the Advantage of the Rising Grounds.*
- 8. *Epaulement.*
- 9. *At-*

9. *Attack on the Right.*
10. *Attack on the Left.*
11. *Parallels, Lines of Communication, or Boyau's.*
12. *Likewise Boyau's.*
13. *Places of Arms.*
14. *Batteries for dismounting the Enemy's Guns.*
15. *Breach Batteries.*
16. *Mortar Batteries.*
17. *Coehorn Mortars.*
18. *A Sapp.*
19. *A Lodgment.*
20. *Mines.*
21. *Traversee to pass to soss.*
22. *Lodgments on the Works.*
23. *A Powder Chamler.*
24. *A Bomb Chamber.*

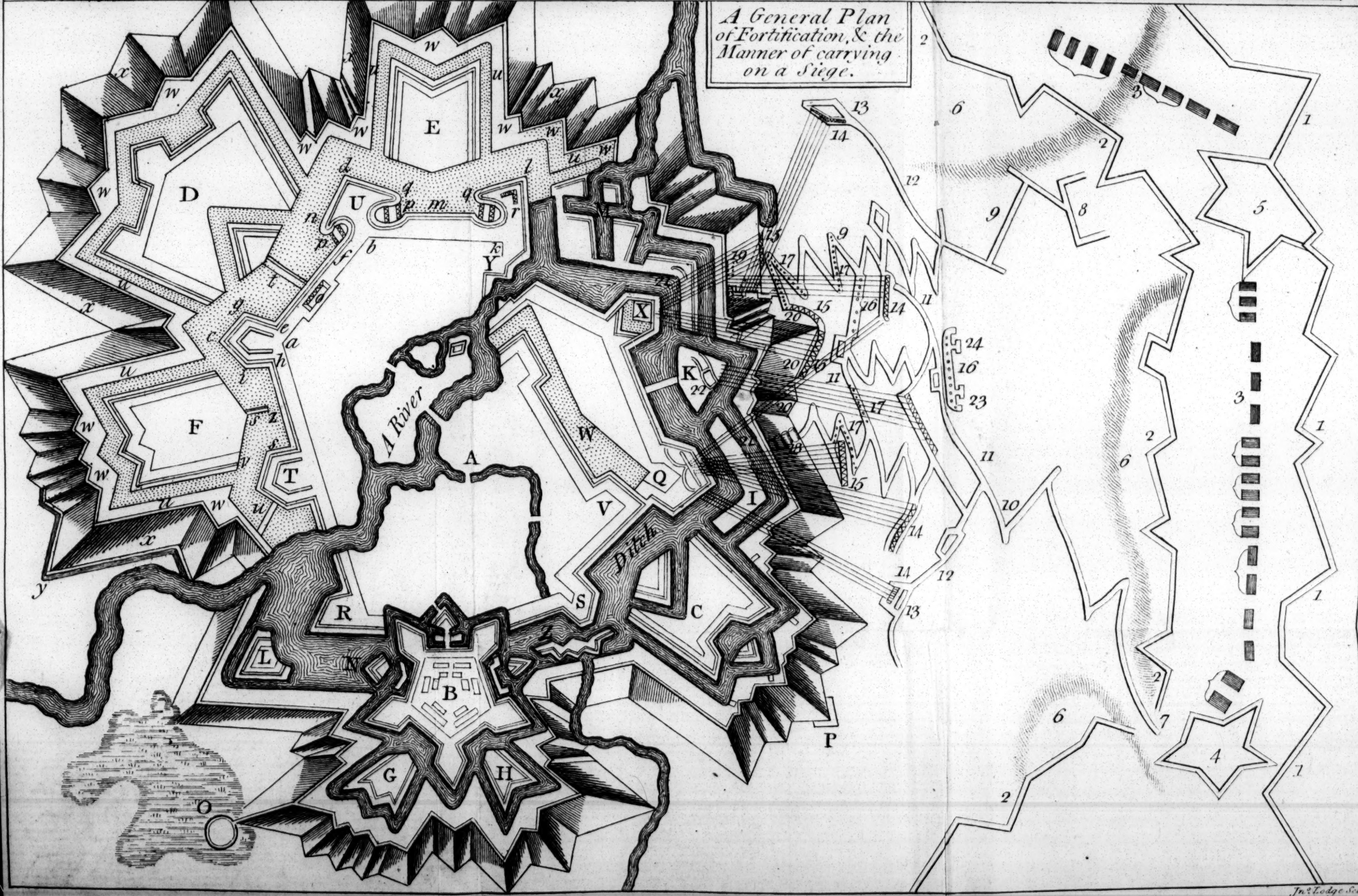
MILITARY UTENSILS

IN PLATE I.

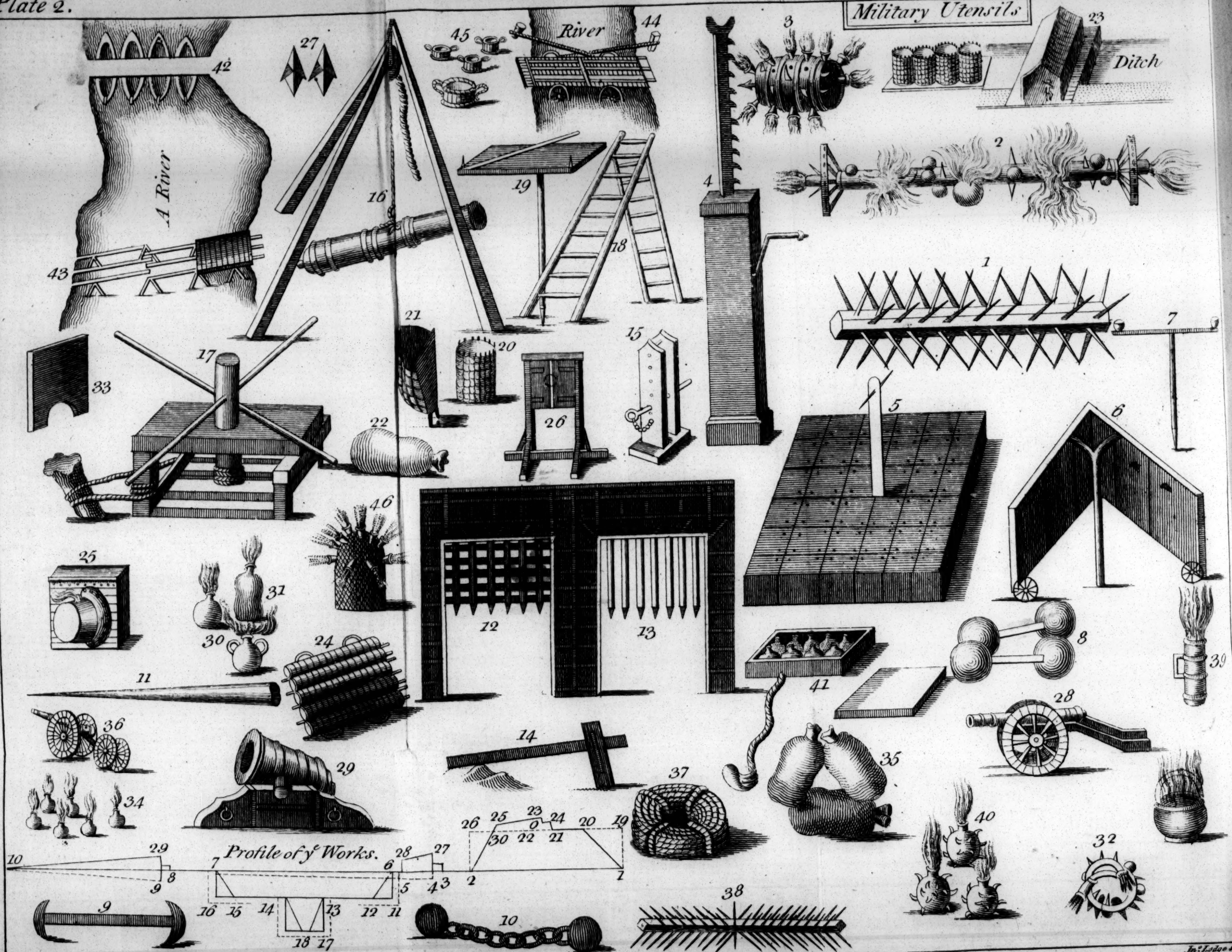
25. *Fascines, or Faggots.*
26. *Earth Barrels filled.*
27. *A Herse.*
28. *A Herfillon.*
29. *A Wedge for pointing the Cannon.*
30. *Pincers, for putting red-hot ball into the Cannon.*
31. *A Hairy Drag.*
32. *A Lintstock, to fire the Cannon.*



A General Plan of Fortification, & the Manner of carrying on a Siege.



Military Utensils



EXPLANATION, &c. xxi

- 33. *A Worm, to draw the Shot.*
- 34. *A Gunner's Hammer.*
- 35. *A Drag for cleaning the Cannon.*
- 36. *A Shovel to stir the Powder with.*
- 37. *An Iron Crow.*
- 38. *A Cannon Rammer.*
- 39. *Instrument to put in the Powder,*
- 40. *Chained Stakes to stop up Passes.*

MILITARY UTENSILS.

PLATE II.

- 1. *A Cheval de Frize mounted.*
- 2. *A Cheval filled with Fireworks.*
- 3. *A Barrel with Fireworks.*
- 4. *Engine for lifting heavy Baggage, &c.*
- 5. *Floating Bridge, to cross a wet Ditch.*
- 6. *Madrier for carrying on Approaches.*
- 7. *An Engineer's Level.*
- 8. *Cross-Bar Bullets.*
- 9. *Cross-Bar Half-Balls.*
- 10. *Chained Balls.*
- 11. *A Miner's Instruments to make Holes in Rocks, &c.*
- 12. *Gate with Orgues.*
- 13. *Gate with a Herse, or Portcullis.*
- 14. *A little Crab, to raise Cannon, &c.*
- 15. *A Chiorette, or Crab.*
- 16. *Another Crab, to fix Cannon on their Carriages.*

17. *A Capstane, or Crane.*
18. *A Scaling Ladder.*
19. *Board for taking of Flats.*
20. *A Gabion.*
21. *A Doffer.*
22. *A Bag of Earth.*
23. *Gallery with a Covering of Gabions.*
24. *Clayes or Hurdles.*
25. *A Petard, with its Madrier.*
26. *A Chandelier.*
27. *Caltraps or Crows Feet.*
28. *A Cannon on its Stocks.*
29. *A Mortar on its Stocks.*
30. *Bombs.*
31. *A Hollow Bullet.*
32. *A Crown Firework, or Crown with a Fire-pot.*
33. *An Aim Frontlet.*
34. *Grenades.*
35. *Sacks of Earth for the Besieged.*
36. *A Cannon on its Stock and Carriage.*
37. *Cables to stop Flying Bridges, or Boats, &c.*
38. *Herissons.*
39. *Piece to shoot at Rejoicings.*
40. *Carcasses.*
41. *A Caisson, with its Lid and Saucidge.*
42. *A Bridge of Boats.*
43. *Flying Bridge of Communication.*
44. *Floating Bridge upon Casks.*

An ORTHOGRAPHICAL SECTION of all the common Works, for the better Understanding of the WORKS.

in PLATE II.

- 1, 10. *Level of the Plan.*
- 1, 2. *Base of the Rampart.*
- 2, 5. *The Fausse Braye.*
- 2, 4. *Space of the Fausse Braye.*
- 4, 5. *Base of the Parapet of the Fausse Braye.*
- 5, 6. *The Berme or Foreland.*
- 6, 7. *Breadth of the Ditch.*
- 7, 9. *The Covert-Way.*
- 29, 10. *The Glacis.*
- 3, 4. *Breadth of the Banquet of the Fausse Braye.*
- 8, 9. *Breadth of the Banquet of the Covert Way.*
- 1, 19, 2, 26. *Height of the Rampart.*
- 19, 20. *Inward Talus of the Rampart.*
- 26, 30. *Outward Talus of the Rampart.*
- 22, 30. *Base of the Parapet.*
- 22, 23. *Height of the Parapet.*
- 22, 25. *Glacis of the Parapet.*
- 22, 0. *Height of the Banquet.*
- 24, 0. *Height above the Banquet.*
- 4, 27. *Height of the Banquet of the Fausse Braye.*
- 27, 28. *Glacis of the Fausse Braye.*
- 6, 11, 7, 16. *Depth of the Ditch.*
- 11, 12, 15, 16. *Talus of the Ditch.*
- 6, 12. *The Escarpe.*

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45. *Corbeilles, or little Baskets.*
46. *Fire-pot full of Fireworks.*
7, 15. *The Counterscarp.*
13, 14. *Breadth of the Cuvette.*
17, 18. *Talus of the Cuvette.*
9, 29. *Depth of the Covert Way.*
20, 21. *The Terre Plain, or the Level of the
Rampart.*



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MILITARY DICTIONARY.

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A *CANZIL*, the name of the Turkish light-horse that form the van-guard of the Grand Signior's army.

Accessible. Something that may be come at, or approached to; thus we say, such a place is accessible on one side, &c.

Acclivity, is used to denote the ascent of a hill or rising ground, as declivity is the descent. It is sometimes used for the talus of the rampart. See *Talus*.

Accoutrement, an old term, signifying dress, still used for the furniture of a soldier.

Action, is an engagement between two armies, or different bodies of troops belonging to them. Also implies some memorable act done by an officer or commander of a body of troops.

Adjutant, the same as *Aid Major*. The former name is most used in *England*, the latter abroad. See *Aid Major*.

Advanced, signifies something posted or situated before another.

Advanc'd Fosse. A moat round the *Glacis*, or esplanade of a place, to prevent a surprize. See *Avant Fosse*.

Advanc'd Guard, or *Vanguard*, denotes the first line or division of an army, ranged or marching in order of battle,

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or it is that part which is next the enemy, and marches first towards them. See *Guard*.

Agger. In the ancient military art, it was the bank or rampart, composed of various materials, as earth, boughs of trees, &c. of the same nature as that by moderns called *Lines*. It is also used in other senses, as for a wall, or bulwark; the middle part of a military road; and sometimes for the heaps of earth raised over graves, commonly called *Tumuli*.

Agiares, in the Turkish armies, are a kind of pioneers employed in fortifying camps, and the like offices.

Aid de Camp. An officer always following one of the generals; that is, the field marshal, general in chief, lieutenant general, or major general, to receive and carry their orders, as occasion requires. When the king is in the field, he appoints young gentlemen of note to carry his orders, and they are called the king's *Aids de Camp*. A lieutenant general has two *Aids de Camp*, and a major general one. They ought to be alert in comprehending, and punctual and distinct in delivering all orders.

Aid Major, or *Adjutant*. An officer who eases the major of part of the burthen of his duty, and performs it all in his absence. He receives the orders every night from the brigade major; which after carrying them to the colonel, he delivers them out to the serjeants in the ring. When detachments are to be made, he gives the number to be furnished by each company, and assigns the hour and place of rendezvous. He also places the guards, distributes ammunition, &c. Each troop of guards has but one major, who has two *Aids Majors*. Every fortified place has but one major, who has more or fewer *Aids Majors* under him, according to its bigness. Every regiment of foot has as many *Aids Majors* as it contains battalions. When a battalion is drawn up, the *Aid Major's* post is on the left, beyond all the captains, and behind the lieutenant colonel. Adjutant by the French is sometimes used for Aid de Camp.

Aim Frontlet. An engineer's machine, whereby he levels and directs his cannon.

Air Gun. A machine for exploding balls by means of condensed air.

A N G

Alarm, sometimes falsely writ *Alarum*, is a sudden apprehension upon some report, which makes men run to their arms to stand upon their guard. False alarms are when they are taken upon false reports, occasioned by a fearful or negligent centinel; or they are given by the enemy, only to keep their adversaries from rest, or otherwise to deceive them; or, sometimes by a vigilant officer, to try if the piquet guard are strict upon duty.

Alarm Bell, that rung upon any sudden emergency, as a mutiny, &c.

Alarm Post. The ground appointed by the quarter master general for each regiment to march to, in case of an alarm.

Ambuscade, or *Ambush*. A body of men that lie concealed in a wood, or other convenient place, to surprize or enclose an enemy. *To fall into an ambush*; *To discover an ambush*; *To defeat an ambush*; are phrases used on account of these parties.

Ammunition. It implie sall sorts of warlike stores, but more particularly powder and ball.

Ammunition Bread. The bread that is provided for, and distributed to the soldiers. The usual allowance is a loaf of six pounds to every soldier, once in four days. Whoever is desirous of knowing the quantity of ammunition necessary for the siege of a place may consult the Chev. de St. Julien's *traitise de la Forge de Vulcain*; and the quantity requisite for the defence of a place, may consult Suirey de St. Remy's *Memoirs d'Arillerie*.

Angle. As a geometrical term in general, signifies the meeting of two lines, and touching one another in the same plain; yet not lying in the same strait direction, but so, that if prolong'd, they would cut one another, and so form another angle upon the back of the first.

A Right Angle is form'd by a line falling perpendicularly upon another, and the measure of this angle is always 90 degrees.

An Acute Angle. That which is sharp, and less open than the right angle, in measure under 90 degrees.

An Obtuse Angle. That which is blunt, and more open than a right angle; the same as *Ambligon*, which is more than 90 degrees.

An Angle Rectilinear is made by strait lines, to distinguish from the spherical, or curvilinear.

A N G

Angle at the Center. In fortification, is that which is formed in the midst of the *polygon*, or figure, by two lines proceeding from the center, and terminating at the two nearest angles of the *polygon*.

Angle of the Curtin, or Angle of the Flank. That which is made by, and contain'd between the curtin and the flank.

Angle of the Polygon. That which is made by the meeting of the two sides of the *polygon*, or figure, in the center of the bastion.

Angle of the Triangle. Half the angle of the *polygon*.

Angle of the Bastion, or Flank'd Angle. That which is made by the two faces, being the utmost part of the bastion, most exposed to the enemies batteries, and called the point of the bastion.

Angle of the Elevation. See *Elevation*.

Angle diminish'd. Only used by the Dutch engineers, and composed by the face of the bastion, and the exterior side of the *polygon*.

Angle of the Shoulder, or Epaule. Form'd by one face and one flank of the bastion.

Angle of the Flank. Vide *Angle of the Curtin*.

Angle of the Tenaille, or outward Flanking Angle, called also Angle-mort, or Dead Angle, Angle Rentrant, or Angle Inwards. Made by two lines *sichant*, that is, the faces of the two bastions extended 'till they meet in an angle towards the curtin, and is that which always carries its point towards the work.

Angle forming the Face, is the inward angle, composed of one face.

Angle forming the Flank. Made by the flank, and that part of the side of the *polygon*, which runs from the said flank to the angle of the *polygon*, and if protracted crosses the bastion.

Angle of the Moat, is formed before the center of the curtin, by the outward line of the moat or fosse.

Flank'd Angle, or point of the bastion. See *Angle of the Bastion*.

Angle Saillant, Sortant, or Sallying Angle. That which thrusts out its point from the work towards the country. Such is the angle of the counterscarp before the point of a bastion.

Angle

A R C

Angle Rentrant, or Entering Angle. An angle pointing inwards, as the *Saillant*, does outwards. Such is the angle of the counterscarp before the curtain.

Inward Flanking Angle. That which is made by the flanking line, and the curtain.

Angle of the Counterscarp. Made by two sides of the counterscarp before the middle of the curtain.

Angles of a Battalion. Made by the last men at the ends of the ranks and files.

Front Angles. The two last men of the front rank.

Rear Angles. The two last men of the rear rank.

Angon. A kind of javelin used by the French, who can dart it a considerable distance. The iron head of it resembles a fleur-de-lis; and it is the opinion of some writers, that the arms of France are not fleurs de-lis, but the iron point of the angon or javelin of the ancient French.

Anspesade. See *Lanspesade*.

Antestature. A small intrenchment, hastily made with palisadoes, gabions, or bags of earth, wherewith men cover themselves suddenly, to dispute the rest of the ground, when the enemy has gained part. This term is become obsolete. See *Retrenchment*.

Antient. Is used sometimes for the ensign, or colours.

Appointée. A foot soldier, who for his long service and extraordinary bravery, receives pay above the private centinels, and expects to be advanced. This is in *France* only, we having no such in *England*.

Approaches. All the works that are carried on towards a place that is besieged; as the trenches, epaulments without trenches, redoubts, places of arms, sappe, galleries, and lodgments. See these words in their several places. Approaches also signify attacks. The besieged frequently make counter-approaches. See *Counter Approaches*.

Apron. The piece of lead which covers the touch-hole of a cannon.

Araigné, Rameau, Branch, Return, or Gallery of a Mine. See *Gallery*.

Archer. One who fights with a bow and arrow. The English archers were formerly esteemed the best in Europe, to whose superior abilities were imputed their many victories.

A R M

Architecture Military. The same as fortification. See *Fortification*.

Area. The superficial content of any rampart, or other work.

Armiger. An esquire, or armour bearer.

Armistice. A temporary truce or cessation of arms, for a short space of time.

Armory. The store house or repository or place wherein the military habiliments are kept, to be ready for use, on the least notice.

Armour. Denotes all such habiliments as serve to defend the body from wounds, especially of darts, a sword, a lance, &c. A complete suit of armour formerly consisted of a helmet, a shield, a cuirasse, a coat of mail, a gantlet, &c. all now laid aside.

Armourer. A person who makes or deals in arms and armour.

Arms. In general all kinds of weapons, whether used for defence or offence. *Arms of Offence* are the sword, pistol, musquet, bayonet, &c. See *Sword*, &c. *Arms of Defence* are shields, helmets, &c.

Arms of Courtesy, or Parade, are lances not shod; swords without edge or point, &c.

Army. A large body of soldiers consisting of horse and foot, completely armed and provided with artillery, ammunition, provisions, &c. under the command of one general; having lieutenant-generals, major-generals, brigadiers, and other officers under him. An army is composed of squadrons and battalions, and is usually divided into three corps, and formed into three lines; the first line is called the vanguard, the second the main body, and the third the rear guard, or body of reserve. The middle of each line is possessed by the foot, the cavalry form the right and left wing of each line; and sometimes they place squadrons of horse in the intervals between the battalions. When the army is drawn up in order of battle, the horse are placed at five feet distance from each other, and the foot at three. In each line the battalions are distant from each other one hundred and eighty feet, which is nearly equal to the extent of their front, and the same holds of the squadrons, which are about three hundred feet distant, the extent of their own front.

Front. These intervals are left for the squadrons and battalions of the second line to range themselves against the intervals of the first, that both may more readily march through those spaces to the enemy: the first line is usually three hundred feet distant from the second, and the second the same distance from the third, that there may be sufficient room to rally, when the squadrons and battalions are broken.

Flying Army, or Flying Camp. See *Camp*.

Arms, place of. See *Place*.

Array, or Battle Array. The order or disposition of an army, drawn up with a view to engage the enemy.

Arrow. A missile weapon, about three feet long, sharp-pointed and barbed, designed to be shot or thrown out of a bow.

Arsenal, or Magazine. A place appointed for making and keeping of all kind of warlike stores.

Artillery. All sorts of large fire arms, with their appurtenances, as cannon, musquets, carabines, bombs, mortars, petards, and the like. The train of artillery is a certain number of pieces of ordnance, mounted on carriages, with all their furniture fit for marching, as mortar-pieces, cannons, bombs, carcasses, &c. There are trains of artillery in most of the king's magazines, as at the Tower, Portsmouth, Plymouth, &c. The writers upon artillery are Casimir, Semionowitz, Brechtelme, Buchnerus, Braunius, Mieth, and S. Remy.—In his memoirs d'Artillerie, which contains an accurate description of all the machines and instruments of war.—There is a comptroller, and very many other officers belonging to the artillery; besides conductors, bombardiers, gunners, matrosses, pioneers, pontoon-men, carpenters, wheelwrights, smiths, coopers, tinmen, and collar-makers. See *Cannon, Mortar, &c.*

Artillery Park. See *Park*.

Assault, or Storm. The effort men make, and the fight they engage in, to become masters of a post, and gain it by main force, driving the defendants from it, and exposing their bodies, for this purpose, to the fire of the besieged, without the defence of any works. An assault is generally made by the regiments that guard the trenches, sustained by detachments from the army. Whilst it lasts, and both parties

A V E

ties are mixed, there is no danger of the cannon on either side, because both are afraid of destroying their own men among the enemies. The phrases the word is used in are; *To give an Assault: To be commanded to the Assault: To stand to an Assault: To second the Assault: To repulse an Assault: To carry by Assault.*

To Assault, or Storm. Vide *To Insult.*

Assembly. The second beat of drum before a march, at which they strike and roll up their tents, and stand to their arms.

Astragal. A round moulding encompassing a cannon, about six inches from its mouth.

Asappes, or Azapes. The name of the auxiliary troops in a Turkish army, which are raised among the christians under their dominion, and exposed to the first shock of the enemy.

Attack. The general assault, or onset, that is given to gain a post, or upon any body of troops. See *Assault.*

Attack of a Siege. The works the besiegers carry on, either trenches, galleries, sapps, or breaches, to reduce a place, on any of its sides. Most commonly two attacks are carried on against the same *tenaille*, or front of a place, with lines of communication between them. Vide *Trenches*

False Attacks are not carried on with such vigour as true, not being intended to do the same effect, but only to give a diversion to the besieged, divide the garrison, and favour the real attack; and yet sometimes the false attack has proved as favourable as the real.

To Attack in Flank, is to attack both sides of the bastion.

Regular, or Droit Attacks. Those which are carried on in form, according to rules of art.

Avant. A French term contracted by us into Van.

Avant Fosse, or ditch of the counterescarp, next the campaign, at the foot of the Glacis. Engineers do not approve of it, where there is a possibility of draining it, because then it is a trench ready made for the besiegers, to defend themselves against the sallies of the besieged; and besides, it obstructs the throwing of succours into the place.

Avenue. An opening or inlet into a fort or bastion, &c. See *Bastion.*

B A.

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BACULE. A kind of portcullis or gate made like a pitfall, with a counterpoise before the advanced guards, near the gate, which is supported with stakes. It is usually made before the corps de guard, not far from the gate of a place.

Baggage, implies the clothes, tents, utensils of divers sorts, provisions, and other necessities belonging to an army.

Baggage Waggon. Those in which the officers and regiments baggage is carried. Before a march they are appointed a rendezvous, and are marshall'd by the waggon-master general, according to the rank the regiments have in an army. On a march they sometimes follow their respective columns of the army, sometimes the artillery, and sometimes make a column of themselves. The general's baggage is first. If the army march from the right, the baggage of that wing has the van; if from the left, the baggage of the left has the van. Each waggon has a flag, to shew to what regiment it belongs.

Bags. Vide *Canvas Bags*.

Bagonet. See *Bayonet*.

Ball. Vide *Bullet* and *Fire Ball*.

Bann. A proclamation made at the head of a body of troops, or in the several quarters of the army, by sound of trumpet, or beat of drum, either for observing of martial discipline, or for declaring a new officer, or punishing a soldier, or the like.

Bandeliers. Little wooden cases covered with leather, of which every musketeer used to wear twelve hanging on a shoulder belt, or collar: each of them contained the charge of powder for a musket. But they are not used now, the foot soldiers wearing a leathern pouch to a broad belt.

Banderet. A general or one of the commanders in chief of the forces. This appellation is given to the principal commanders of the troops of the canton of Bern, in Switzerland, where there are four banderets, who command all the forces of the canton.

Banderoll. A little flag about a yard long and near as broad, pendant to trumpets, &c.

B A R

Bands. Bodies of foot properly, as the *French* formerly called all their infantry, *Bands Françoise*. In *England* the word is still used, the militia being called the trained bands; as also for the band of pensioners, a company of gentlemen attending the king's person upon solemn occasions.

Banner denotes either a square flag, or the principal standard belonging to a prince. We find a multiplicity of opinions concerning the etymology of the word *Banner*: some deriving it from the Latin *bandum*, a band or flag; others from the word *Bann* to summons the vassals to appear in arms; others again from the German *ban*, a field or tenement, because landed men alone were allowed a banner; and, finally, there are some who think it is a corruption of *panniere*, from *pannus* cloth, because banners were originally made of cloth.

Banquette. Vide *Footbank*.

Barrack. A hut, like a little cottage, for soldiers to lie in the camp. Once only those of the horse were called barracks, and those of the foot huts; but now the name is indifferently given to both. These are made either when the soldiers have not tents, or when an army lies long in a place in bad weather; because they keep out cold, heat, or rain, better than tents, and are otherwise more commodious. They are generally made by fixing four forked poles in the ground, laying four others a-cross them, and building the walls with wattles, sods, or such as the place affords. The top is either thatch'd, or cover'd with planks, or sometimes with turf. Dr. Pringle observes that damp barracks are highly injurious to the health of soldiers lodged in them, and therefore must be avoided by some means or other.

Barbacan, or *Barbican*. An outer defence or fortification to a city or castle, used especially as a fence to a city or walls; also an aperture made in the walls of a fortress to fire thro' upon the enemy. It is also used for a fort at the entrance of a bridge, or the outlet of a city, having a double wall with towers.

Barbe. To fire *en Barbe*, is to fire the cannon over the parapet, instead of putting it through *embrasures*. To fire thus, the parapet must be but three foot and a half high.

Barm, or *Berm*. Vide *Foreland*.

Barricade

B A S

Barricade. A fence made of pallisadoes, empty barrels, and such like vessels, bags of earth, stones, carts, trees cut down, against an enemy's shot or assault; but generally trees cut with six faces, which are crossed with battoons as long as a half pike, bound about with iron at the feet.

Barrels, filled with earth, serve to make parapets to cover the men, like the gabions, and canvas bags.

Thundering Barrels are filled with bombs, grenades, and other fire-works, to be rolled down a breach.

Barrier. A kind of fence made at a postage, retrenchment, &c. to stop up the entry thereof, and is composed of great stakes, about four or five feet high, placed at the distance of about eight or ten feet from one another, with transoms, or over-thwart rafters, to stop either horse or foot, that would enter or rush in with violence: in the middle is a moveable bar of wood that opens and shuts at pleasure. A barrier is commonly set up in a void space, between the citadel and the town, in half-moons, &c.

Barrier is also used to express a martial exercise of armed men, fighting together with short swords, within rails or bars, which inclose them.

Base, or Basis. The level line on which any work stands, that is even with the ground, or other work on which it is erected. Thus the base of a parapet is the rampart.

A **Base** signifies also the smallest piece of cannon, whose bore is one inch and quarter, weight two hundred pound, length four feet, load five pound, shot one pound and half weight, and diameter one one-eighth inch.

Base ring of a cannon. The great ring next to and behind the touch hole.

Basilisk. A large piece of ordnance, being a forty-eight pounder, weighing about seven thousand pounds. The basiliisks of the French are but ten feet long, those of the Dutch are fifteen feet long.

Baskets, or Corbeilles, are used to be filled with earth, and placed one by another upon a parapet, to cover the men from the enemy's shot. They are wider at the top than at the bottom, that there may be space between them below for the men to fire thro' upon the enemy. They are generally a foot and a half high, as much broad at top, and eight or ten inches at bottom.

B A S

Basse Enceinte, or Basse Enclosure. The same as *Fausse Braye*.

Bastion. A great work of earth, sometimes fac'd or lin'd with stone, or brick, and sometimes with sods, generally advancing before an angle of the *polygon* towards the campaign, or standing out from a rampart, whereof it is the principal part, and is what, in the antient fortification, was called a bulwark, *propugnaculum*. The lines terminating it are two faces, two flanks, and two demi-gorges. The union of the two faces makes the outmost angle, called *the angle of the bastion*, or *salient angle*. The union of the two faces to the two flanks, makes the side angles, called the *shoulders* or *Epaules*; and the union of the two other ends of the flanks to the two curtains, forms the angles of the flanks. In regard to the bastion, the great rule is, that every part of it be seen, and defended from some other part: whence mere angles are not sufficient, but flanks and faces are necessary. For the proportion of the faces, they are not to be less than forty-eight fathoms, nor more than sixty. The flanks of the bastion, in case they stand at the same angle under the line of defence, are so much the better the longer they be; whence they must stand at right angles to the line of defence; and the disposition of the flanks makes the principal part of fortification, as it is that on which the defence chiefly depends, and which hath introduced the various forms of fortifying. The angles of the bastion must be more than sixty degrees, otherwise it will be too small to give room for guns, and will render the line of defence too long, or the flanks too short, so that it must be either a right angle, or some intermediate one between that and sixty degrees; for it is disputed, whether or no it should exceed a right angle.

A Bastion Compos'd, is when the two sides of the interior *polygon* are very unequal, which makes the gorges also unequal.

A Bastion cut off with a Tenaille, in French, *Bastion coupé*, or *Bastion à tenaille*, is that whose point is cut off, and makes an angle inwards, and two points outwards, that is a *Tenaille*. This is done when water, or any other accident, hinders carrying on the bastion to its full extent.

A Bastion

B A S

A Bastion deform'd. That which wants one of the demi-gorges, because one side of the interior *polygon* is so very short.

A Demi Bastion, has but one face and flank, and is usually before a horn-work, or crown-work. It is also called an *Epaulment*.

A Bastion detach'd, or cut off. That which is separated from the body of the work. It differs from a half moon, whose rampart and parapet are not so high and thick as the body of the place.

A Double Bastion, is rais'd on the plain of the great bastion, and has another bastion built higher, leaving twelve or eighteen feet between the parapet of the lower, and the foot of the higher. It is sometimes in the nature of a cavalier.

A Hollow, or Voided Bastion, in French, *Bastion Vuide*, or *Creux*, has only a rampart and parapet about its flanks and faces, leaving an empty space towards the center, and the earth so low, that when an enemy is once lodg'd on the rampart, there is no making a retrenchment towards the centre, but what will be under the fire of the besiegers.

A Plat or Flat Bastion. If the distance between the angles of the interior *polygon* be double the usual length, then a bastion is made in the middle before the curtain or frait line; whereas the others are generally before the angles: and this is called a *plat bastion*. It has generally this disadvantage attending it. That unless there be an extraordinary breadth allow'd to the moat, the returning angle of the counterscarp runs back too far into the ditch, and hinders the sight and defence of the two opposite flanks.

A Regular Bastion, is that which has a due proportion of faces, flanks, and gorges.

An Irregular Bastion, is that wherein that equality of proportion is omitted.

A Solid Bastion, rises equally to the ramparts of the place, without any empty space towards the centre. They have this advantage above others, that they afford earth enough to make a retrenchment, in case the enemy lodge himself on the top of the bastion, and the besieged are resolved to dispute every foot of ground.

Battalia.

B A T

Battalia. An army drawn up in order of battle. See *army* and *battle*.

Battalion. A body of foot, commonly consisting from five to eight hundred men, two thirds whereof used to be musketeers, and the other third pikemen, who were posted in the centre. But the general use of bayonets has brought that of pikes into disuse. *Battalions* are for the most part drawn up six deep, that is six men in file, or one before another: those in length, or side by side, being called *ranks*. Some regiments consist of but one battalion; but if more numerous, they are divided into several battalions, according to their strength; so that every one may be about the number aforesaid. Thus the battalions of *French* guards have commonly but five companies, because each of those companies have one hundred and fifty men; but of other *French* regiments there go sixteen companies to make up a battalion, because they are but fifty men in a company. Of the *Swiss* guards four companies make a battalion, because they are one hundred and eighty in a company. In the *English* foot guards, the first regiment consists of three battalions, and the second and third of two each. When there are companies of several regiments in a garrison, and they are to form a battalion, those of the eldest regiment post themselves on the right; those of the second on the left; and so the others successively on the right and left, till the youngest fall into the centre. The subaltern officers take their posts before their companies, the captains on the right and left, according to their degree. Battalions are divided into three great divisions, which are the right and left wings, and the centre. The grenadiers, of whom there are now usually one company in a battalion, take the right of the other companies. In marching, when there is not room for so large a front, they break into subdivisions, according as the ground will allow. The art of drawing up battalions, teaches how to range a body of foot, in such order and form, that it may most advantageously engage a greater body, either of horse or foot, or both: but the main design is, to prevent the foot being broken by the horse when attack'd in open field, where there are no ditches, hedges, or other advantages to secure them. Formerly they used to reduce the battalion to an *octagon*, or figure of eight sides; and since the hollow square

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has been used: but both these methods require too much time upon sudden occasions, and men must be very well disciplin'd, or it will put them into greater confusion. There is usually great uncertainty in computing the number of an army from that of the battalions, which, by the common chance of war, are often liable to be very incomplete.

Battering. The attacking a place, work, or the like, with heavy artillery. To batter in breach, is to play furiously on a work, as the angle of a half moon, in order to demolish and make a gap therein. In this they observe never to fire a piece at the top, but all at the bottom, from three to six feet from the ground. The battery of the camp is usually surrounded with a trench and pallisadoes at the bottom, with two redoubts on the wings, or certain places of arms, capable of covering the troops which are appointed for their defence.

Battering Pieces. See *Cannon*.

Battery, or Platform. A place to plant guns on. It is laid with planks and sleepers for them to rest on, that the wheels of the carriages may not sink into the earth. They are allow'd a little slope, or inclining towards the parapet, that the guns may recoil the less, and be more easily brought back to their place. *Field or Camp Batteries* are to have a ditch before them, to be pallisado'd, and have a parapet on them, and two redoubts on the flanks, or places of arms, to cover the troops that are to defend them. The open spaces in the parapet, to put the muzzles of the guns out at, are called *Embrasures*, which are about three feet from the ground, and go sloping lower on the outside, and their width two or three feet on the inside, but six or seven on the outside, and the distances between the embrasures, are called *Merlons*, and are generally masses of earth or stone. The guns are generally about twelve feet distant from one another, that the parapet may be strong, and the gunners have room to work.

Battery of Mortars, differs from that of guns, being sunk into the ground, and without embrasures: The *Dutch* call it a kettle.

Battery Sunk, or Bury'd. In *French*, *Batterie Enterrée*, or *Ruinante*. When the platform is sunk into the ground, so that there must be trenches cut in the earth against the muzzles of the guns for them to fire out at, or to serve as embrasures

B A T

brazures. This sort of battery is generally us'd upon first making the approaches, to beat down the parapet of the place.

Cross Batteries. Two batteries which play athwart one another, upon the same body, forming an angle there, and beating with more violence, whence follows greater destruction; because what one bullet shakes, the other beats down.

Battery de Enfilade. That which scours, or sweeps the whole length of a strait line, or the face or flank of any work.

Battery en Echarpe. That which plays on any work obliquely.

Battery de Reverse, or Murdering Battery. That which plays upon the enemy's back.

Joint or Camarade-Battery; in *French*, *Batterie per Camarade.* When several guns fire at the same time upon one body.

'To raise a battery,' 'To plant a battery,' 'To ruin a battery,' are the phrases that respect this work. The latter signifies to blow it up, or nail the guns. In a siege, guns are brought to the battery in the night, by men, having harness for that purpose.

Batterie de Tambour. The *French* so call the beat of drum, which we call the general. *Vide General, To beat the General.*

Batteurs d'Estrade. Scouts or discoverers, horsemen sent out before, and on the wings of an army, a mile, two or three, to discover, and give the general account of what they see.

Battery-Master. His province is to raise the batteries: the office is now suppressed in *England*, but not in *Holland*.

Battle. The regular engagement of two armies, in a country sufficiently open for them to encounter in front, and at the same time; or, at least for the greater part of the line to engage; other great actions, though of a longer duration, and even attended with greater slaughter, are only termed fights. The loss of a battle frequently draws with it that of the artillery and baggage, the consequence of which is, that as the army beaten cannot again look the enemy in the face, till these losses have been repaired, it is forced

B E A

forced to leave the enemy a long time master of the country, and at liberty to execute all their schemes; whereas a great fight lost, is rarely attended with the loss of all the artillery, and scarcely ever all the baggage.

Battle-Array. The order or line of battle; the form of drawing up the army for fight.

Main Battle. In *French*, *Corps de Bataille*. The main body of the army, which is the second of the three lines, whereof the first is the van, and the third is the rear, or reserve. *Vide* Line.

Line of Battle. *Order of Battle.* See *Line* and *Army*.

Square Battle. See *Square*.

Battlements, are the indentures in the top of any fortified wall, or building, in the form of embrasures, for the convenience of looking through.

Battle Axe, A kind of halberd, first introduced in England by the Danes.

Bavins, are brush faggots, with the brush at length.

Bayonet. A short strong dagger without any guard, generally made with a round hollow handle, and a shoulder, to fix to the muzzle of a musket, in which manner it serves instead of a pike, to receive the charge of horse, all the men having first the advantage of their shot, and then, as many as there is occasion for, with their bayonets thus on their muskets, cover the rest of the musketeers. Frequently the whole body fire with their bayonets fixed, which they do clear of them by means of the shoulder above-mentioned, that they may be ready to use them instantly.

Bear. A piece of ordnance is said to come to bear, when it lies right with or directly against the mark.

Beat of Drum, is to give notice by beat of drum of a sudden danger: or, that scattered soldiers may repair to their arms and quarters, is to beat an alarm, or to arms; also to signify by different manners of sounding a drum, that the soldiers are to fall on the enemy; to retreat before, in, or after an attack; to remove, or march, from one place to another; to retreat upon terms, or confer with the enemy; to permit the soldiers to come out of their quarters at break of day; to order to repair to their colours, &c. is to beat a charge, a retreat, &c. See *Drum*.

B L O

To beat a Parley. Vide *Chamade*. For this, and all other beats, see also *Drum*.

Bed of the Carriage of a great Gun. A thick plank that lies under the piece; being as it were the body of the carriage.

Berme. Vide *Foreland*.

Beetles. Great sledges or hammers to drive down pallisades, or for other uses.

Billeting, is the quartering of soldiers in the houses of a town or village.

Biovac. A guard at night, perform'd by the whole army; which either at a siege, or lying before an enemy, every evening draws out from its tents or huts, and continues all night under arms before its lines or camp, to prevent any surprize. When troops are much harass'd, or there is no great apprehension of the enemy, sometimes it is allow'd in the *biovac*, that the two front ranks, by turns, stand under arms, whilst the rear ranks take some rest on the ground. The word *biovac* is a corruption of the German *weinack*, which signifies double guard. 'To raise the *biovac*,' is to return the army to their tents or huts, some time after break of day.

Blindes. Pieces of wood to lay across the trench, to bear the fascines, or clays, laid on them, loaded with earth, to cover the workmen. This is generally done when the work is about the glacis, and the trench is carry'd on facing the place.

Blindes, are also sometimes only canvas stretch'd to take away the sight of the enemy. Sometimes they are planks set up, for which vide *Mantelets*; others of baskets, for which vide *Gabions*; others of *barrels*, and others of *sacks* fill'd with earth. But most properly blindes are bundles of ozier, or other small wood, bound at both ends, and set up between stakes or clays. In short, they signify any thing that covers from an enemy.

Blinde, is also the same as *Orillon*, which see.

Block Battery, is a wooden battery on four wheels, moveable from place to place, thereby to fire *en barbe*, or over the parapet; sometimes also used in galleries and casemates, where room is wanted.

Block-house. A kind of wooden fort or battery, either mounted on rollers or on a vessel, and serving either on the water or in counterescarps and counter-approaches. The name

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name is also sometimes given to a brick or stone building on a bridge, or the brink of a river, serving not only for its defence, but for the command of the river both above and below.

Blockade, or *Blocus*, is in the nature of a siege, when troops are posted on all the avenues that lead to the place, in order to keep any supplies of men or provisions from going into it; so that it is propos'd to starve and waste it out, and not take it by regular attacks. 'To form a blockade.' 'To raise a blockade.' 'To turn a siege into a blockade,' are phrases here used, and all very intelligible.

To Blockade, or block up a place; *To shut up* all the avenues, so that it can receive no relief.

Blunderbuss. A short fire-arm with a very large bore, to carry a number of musket or pistol bullets, proper to do execution in a crowd, or to make good a narrow passage, as the door of a house, a stair-case, or the like.

Body, is a number of forces, horse and foot, united and marching under one commander.

Main Body of an Army. The troops encamped in the center between the two wings, and generally infantry: the other two bodies are the van-guard and the rear-guard; these being the three into which an army, ranged in form of battle is divided.

Body of Reserve. See *Reserve*.

Bolts, in gunnery, are of several sorts. Those between the cheeks of a gun-carriage to strengthen the transoms, are called the *transom-bolts*. The large iron knobs on the cheeks of a carriage, which keep the hand-spike steady, are called *prize-bolts*. The two short bolts that, when they are inserted in each end of an *English* mortar carriage, serve to traverse her, are call'd *traverse-bolts*. The bolts that pass thro' the cheeks of a mortar, and keep it fix'd at the elevation by the help of quoins, are called *bracket-bolts*. And the four bolts that fasten the brackets or cheeks of a mortar to the bed, are called *bed bolts*.

Bomb. An iron shell, or hollow ball, with a large touch-hole to put in a fusee which is made of wood, and full of a composition that is to burn slowly, that it may last all the time the bomb is flying, and the fire not come to the powder within, till it falls, and so do execution by firing what is about it, or by the pieces of the shell flying about. This
bomb

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bomb is placed into a mortar-piece, mounted on a carriage, and when the bombardier has set fire to the fusee with one hand, he gives fire to the touch hole of the mortar piece with the other. When the bomb is filled with powder, the fusee is fix'd into the vent or touch hole, within an inch of the head, and fastened with a cement made of quick lime, ashes, brick dust, and steel filings, worked together with a glutinous water: or of four parts of pitch, two of colophony, one of turpentine and one of wax. This tube is filled with a combustible matter, made of two ounces of nitre, one of sulphur, and three of gunpowder-dust well rammed. To preserve the fusee, they pitch it over, but uncase it when they put the bomb into the mortar, and strew it over with gunpowder-dust; which having taken fire by the flash of the powder in the chamber of the mortar, burns all the time the bomb is in the air; and, the composition in the fusee being spent, it fires the powder in the bomb, which bursts with great force, blowing up whatever is about it. The great height the bomb goes in the air, and the force with which it falls, makes it go deep into the earth. Bombs may be used without mortar-pieces, as the *Venetians* did at *Candia*, when the *Turks* had possessed themselves of the ditch, rolling down bombs upon them, along a plank set sloping towards their works, with ledges on the sides to keep the bomb right forwards. They are also buried under ground to blow it up, for which see *Caiffon*.

Bombardiers, are those employ'd about a mortar, who drive the fusee, fix the shells, load and fire the mortar, &c.

Bombard. A piece of ordnance antiently in use, exceedingly short and thick, and with a very large mouth. There have been bombards which have thrown a ball of 300 lb. weight. They made use of cranes to load them. They are by some called the basilisk, and by the Dutch dandertup. See *Basilisk*.

Bomb Chest, a kind of chest filled usually with bombs, sometimes only with gunpowder, placed under ground to tear and blow it up into the air, with those who stand on it. It was usually set on fire by means of a saucisse fastened at one end, but it is now disused.

Bomb Ketch, is a small vessel made strong with large beams, for the use of mortars at sea.

Bonnet.

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Bonnet. A work consisting of two faces, which make an angle saillant, in the nature of a small ravelin, without any ditch, having only a parapet, three feet high, and pallisado'd, with another palisado at ten or twelve feet distance. The *bonnet* is made beyond the counterscarp, in the nature of a little advanced *corps de garde*.

Bonnet a Prestre, or Priest's Cap. An outwork, which at the head has three angles saillant, and two inwards, and differs from the double *tenaille* only in this point, that its sides instead of being parallel, are made like the *queue d'gronde*, or swallow's tail; that is narrowing or drawing close at the gorge, and opening at the head.

Bore, denotes the diameter of the barrel of a gun or cannon, or rather its whole cavity.

Boyau, or Branch of the Trenches. A line, or particular cut, that runs from the trenches to cover some spot of ground, and is drawn parallel to the works of the place, that it may not be enfiladed; that is, that the shot from the town may not scour along it. Sometimes a *boyau* is a line of communication from one trench to another, when two attacks are carry'd on near one another. The parapet of a *boyau* being always next to the place besieged, it does the service of a line of contravallation, to hinder sallies, and cover the pioneers.

Brackets, are the cheeks of the carriage of a mortar; they are made of strong planks of wood of almost a semi-circular form, and bound round with thick iron plates; they are fixed to the beds by four bolts, which are called bed-bolts; they rise up on each side of the mortar, and serve to keep her at any elevation, by means of some strong iron bolts called bracket-bolts, which go thro' these cheeks or brackets.

Branch, of the Trench. See *Boyau* above.

Branch of a Mine. Vide *Gallery*.

Breach. A gap made in any part of the works of a town, beaten down with cannon, or blown up by mines, preparatory to the giving an assault. *To make good the breach; To fortify the breach with chevaux de frize, or sow it with crows feet; To make a lodgment on the breach; To clear the breach;* that is, to remove the ruins, that it may be the better defended; are the phrases belonging to this term.

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A practical breach is that where the men may mount and make a lodgment, and ought to be fifteen or twenty fathoms wide. The besiegers make their way to it by covering themselves with gabions, earth bags, &c.

To break Ground. To begin the works for carrying on the siege about a town, or fort, or opening the trenches before a place. It is performed in the night, by the advantage of some hollow way, or eminence, or whatever will serve to cover and shelter the men.

Breast Plate. A piece of armour formerly worn to defend the breast; originally made of hides, or hemp twisted into small cords, but afterwards made of brass, iron or other metals, which were sometimes so excellently hardened as to be proof against the greatest force.

Breast Work. See *Parapet*.

The Breach of a Gun, is the very end of it next the touch-hole.

Bridge. The two pieces of timber which go between the two transoms of a gun-carriage, on which the bed rests.

Bridge. The word in general needs no exposition: but this may be said in relation to it, that of late years copper and tin boats have been much used to be carried in armies, for laying bridges over rivers upon occasion, which is done by joining these boats side by side, till they reach across the river, and laying planks over them to make all plain for the men to march upon. This is called a bridge of boats. See *Pontoon*.

Floating Bridge. A bridge made use of in form of a work in fortification, called a redoubt, consisting of two boats, covered with planks, which are solidly framed so as to bear either horse or cannon.

Flying Bridge, or Pont volant, is made of two small bridges, laid one over the other in such manner, that the uppermost stretches and runs out. by the help of certain cords running through pulleys plac'd along the sides of the under bridge, which push it forwards, 'till the end of it joins the place it is designed to be fix'd on. When these two bridges are stretched out at their full length, so that the two middle ends meet, they must not be above four or five fathom long, because if longer they will break; and there-fore

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fore they are only us'd to surprize out-works, or posts that have but narrow moats.

Bridge of Rushes, or Pont de jonc. A bridge made of great bundles of rushes that grow in marshy grounds; which being bound together, have planks fastened on them, and are laid over morasses or boggy places, for the horse and foot to march over. They have also been used to pass the moat of a place besieged, and are not so easy to be burnt as fascines, tho' these are loaded with earth.

Draw-Bridge. A bridge made fast only at one end with hinges, so that the other end may be lifted up, and then the bridge stands upright to hinder the passage of the moat. There are others made to draw back to hinder the passage, and to thrust over again to pass. Again, there have been others which open in the middle, and one half of them turns away to one side, and the other to the other side, and so they are join'd again at pleasure: but these are not so proper, because one half of them remains on the enemy's side. In the common way they are form'd with plyers, twice the height of the gate, and a foot diameter: the inner part is travers'd with a *St. Andrew's cross*, which serves for a counterpoise; and the chains which hang from the other extremities of the plyers, to raise or fall the bridge, are of iron or brass.

Bridge of Communication, is a bridge thrown over a river, by which two armies or towns, separated by the river, communicate with each other.

Brigade. A party, or body of soldiers, whether foot or horse, commanded by a brigadier. There are two sorts of brigades, a brigade of foot, and a brigade of horse. A brigade of an army is either of horse or foot, and not fixed of what number or force it must be; for the brigade of horse may consist of eight, ten, or twelve squadrons, and that of foot of three, four, five, or six battalions. The eldest brigade has the right of the first line; the second the right of the second line; and the rest in order, the youngest possessing the centre. The battalions, or squadrons, which compose a brigade, observe the same order. The brigade of a troop of horse is the third part of it, when it does not exceed forty or fifty men; but if the troops be a hundred strong,

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strong, it is divided into six brigades. The troops of horse-guards in *England* are divided into several brigades.

Brigade Major. An officer appointed by the brigadier to assist him in the affairs of his brigade. The most able captains are nominated to this post. They act in the brigade as major generals in the armies; receiving the orders of their principals.

Brigadier. The general officer that commands a brigade. The eldest colonels are generally advanced to this post. He that is upon duty is brigadier of that day. Brigadiers of the army are those that command a brigade of so many squadrons of horse, or battalions of foot, as was mentioned in speaking of the brigade of an army; they having the fifth degree in the army, being next in command to the major generals, above whom are lieutenant generals, generals, and, of late years, field marshals. Every brigadier marches at the head of his brigade upon service, and are allowed a serjeant and ten men of their own brigade for their guard. The brigadier of foot commands him of horse in garrison; and the brigadier of horse him of foot in the field. Brigadiers of the horse-guards command as youngest captains of horse. Some troops of horse in *France* have brigadiers, which they have not generally in *England*, where they are called corporals of horse: but there are in the *English* horse-guards sub-brigadiers, as well as brigadiers.

Brigandine. A coat of mail, a kind of antient defensive armour, consisting of tin.

Bringers-up. The whole last rank of a battalion drawn up, being the hindmost men of every file.

Bucklers. A piece of defensive armour used by the antients. It was worn on the left arm, and composed of wickers woven together, or wood of the lightest sort, but most commonly of hides, fortified with plates of brass or other metals. The shape of it varied considerably, being sometimes round, sometimes oval, and often nearly square.

Budge Barrels. Are small barrels well hoop'd, with only one head. On the opposite end is nailed a piece of leather to draw together with strings like a purse; their use is for carrying powder along with a gun or mortar, as they are less dangerous, and more portable than whole barrels. They

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are also used on a battery of mortars, to contain meal powder.

Bullet, Ball, or Shot. The ball of iron, or lead, that is fired out of a cannon, musket, or pistol; for it comprehends all sorts. That of the royal, or whole cannon, weighs forty-eight pound, of the bastard cannon forty-two, of the ordinary demi cannon thirty-two, of the twenty-four pounder, twenty-four, of the large culverin eighteen, of the twelve pounder twelve, of the large demy culverin ten, of the six pounders six, of the saker five and a quarter, of the minion about four, of the three pounders three, of the drakes, pedreros, and bases, gradually less. All these are of iron. The musket ball is about an ounce; the carabine and pistol, and those of lead, less. *Red-hot bullets* are shot in sieges to fire houses, and do the more mischief in a town. They are heated in a forge made for that purpose, close by the battery, whence they are taken out with an iron ladle, and thrown into the pieces, into which before a tomption of sod or turf is ramm'd down, that the bullet may not touch the powder. It fires not only combustible matter but floors and planks.

Hollow Bullets, or shells made cylindrical, with an aperture and fusee at the end, which gives fire to the inside, when in the ground it bursts and has the same effect with a mine.

Chain Bullets, consists of two balls, joined by a chain three or four feet long.

Branch Bullets, are two balls joined together by a bar of iron, five or six inches apart.

Two-headed Bullets, called also angles, are two halves of a bullet, joined by a bar or a chain.

According to Marsenne, a bullet shot out of a great gun, flies ninety-two fathoms in a second of time, being equal to five hundred and eighty-nine English feet and a half; but according to some very accurate experiments of Mr. Derham, it only flies at its first discharge five hundred and ten yards in five half seconds.

Bulwark. The antient name for a bastion, or rampart, now antiquated. See *Rampart*.

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CADET. A young gentleman, who, to learn experience, and wait for preferment, carries arms as a private man in a company of foot. He differs from a volunteer because he receives the pay of a common soldier, whereas a volunteer serves without pay. In France the king allows but two cadets to be received into any one company of foot. The proper signification of the word is younger brother, and thence apply'd to bear this sense, because younger brothers take this upon them to raise the fortunes. It also is taken for an officer who, in respect to another, is younger in the service.

Caïsson, or Superficial Fourneau. A wooden case or chest into which they put three or four bombs, and sometimes the number of six, according to the execution they are to do, or as the ground is firmer or looser. Sometimes this chest is only filled with powder. When the besieged dispute every foot of ground, the caïsson is buried under some work the enemy intends to possess himself of, and when he is master of it, they set fire to it by a train convey'd in a pipe which blows them up. Thus we may say, 'After the mine or *fourneau* had destroyed the *bonette*, a *caïsson* was buried under the ground thrown up, and the enemy advancing to make a lodgment on the ruins of the *bonette*, the *caïsson* was fir'd with a saucidge, and blew up the post the second time.'

Caïsson, is also a covered waggon, to carry bread or ammunition.

Caliber Compasses. Used by gunners to measure the diameter of bullets, and the cylinder of guns; and therefore the legs, instead of being strait, are made arching, to find the true diameter of any circle. They have a quadrant fastened to one leg, and passing through the other, marked with inches, and parts of an inch, to preserve exactness.

Caltrops. Vide *Crow's Feet*.

Camisade, is an attack by surprize in the night, or at the point of day, when the enemy is supposed at rest.

Camp. The ground on which an army pitches its tents.

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and lodges, sometimes intrenching, and sometimes without any other defence than chusing the advantage of the situation. It is mark'd out by the quarter master general, who allots every regiment its ground; in doing which he is to consult the nature of the country, both for defence against the enemy, and supplies for the army. It should have a communication with garrisons, have plenty of water, forage, and fuel, and either rivers, marshes, hills, or woods to cover it. An army always encamps fronting the enemy, and generally in two parallel lines, about five hundred yards distant; the horse and dragoons on the wings, and the foot in the centre. Sometimes three or four brigades encamp between the two lines, and are called the *body of reserve*. The artillery and bread waggons are in the rear of the two lines. A battalion of foot is allow'd eighty or a hundred paces for its camp, and thirty or forty for an interval between one battalion and another. A squadron of horse has thirty paces for its camp, and thirty for an interval, or more, if the ground will allow it. Each battalion posts a small guard, commanded by a subaltern officer, about one hundred yards before the front of the regiment, called the *quarter guard*. And each regiment of horse mounts a small guard on foot, called the *standard guard*. The *grand guard* consists of horse, and is posted a mile and a half distant towards the enemy.

Flying Camp, or Army. A strong body of horse and foot, commanded for the most part by a lieutenant general, which is always in motion, both to cover its own garrisons and to keep the army in continual alarm. It is also used for the ground on which such a body of men encamps.

Campaign. The time every year that an army continues in the field, during any war. We say, 'A man has served so many campaigns.' 'The campaign will begin at such a time.' 'This will be a long campaign.' The word is also used for the open country, before any towns.

Concerning the healthiness of the different seasons of a campaign, the ingenious Dr. Pringle has the following observations: the first fortnight or three weeks is always sickly, after which the sickness decreases, and the men enjoy a tolerable degree of health throughout the summer, unless they get wet cloaths. The most sickly part of the campaign

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paign is towards the end of August, whilst the days are still hot, but the nights cold and damp with fogs and dews; then, if not sooner, the dysentery prevails; and though its violence is over by the beginning of October, yet the remitting fever gaining ground, continues throughout the rest of the campaign, and never entirely ceases even in winter quarters, 'till the frost begins. He likewise observes, that the last fortnight of a campaign, if protracted till the beginning of November, is attended with more sickness than the two first months of the encampment; so that it is better to take the field a fortnight sooner, in order to return into winter quarters so much the earlier. As to winter expeditions, tho' severe in appearance, he tells us, they are attended with little sickness, if the men have strong shoes, warm quarters, fuel, and provision enough.

Cannon, Ordnance, Great Guns, or Artillery. Engines for throwing balls of iron, lead, &c. by the force of gunpowder. They are first known to have been used in the English army at the battle of Cressy in 1346, which were of iron; but the first made of Brass in England are ascribed to J. Owen in 1535. They were at first called bombardiers from the noise they made. They had likewise the names of culverine, basilisk, &c. from the figure of the beast frequently represented on them. The Spaniards from devotion gave them the name of saints.

The most remarkable parts about a cannon are the cascabel, mouldings, basering, touch-hole, vent-ring, reinforced ring, trunions, dolphins, trunion-ring, cornish-ring, neck, muzzle, face, and chase or cylinder; all which see under their proper articles.

The metal of which cannons are composed, is either iron or which is more common, a mixture of copper, tin and brass; the tin being added to the copper to make the metal more dense and compact; so that the better and heavier the copper is, the less tin is required. Some to an hundred pounds of copper add ten of tin, five of brass, and ten of lead.

Braudius describes a method of making cannon of leather and it is certain the Swedes made use of such in the long war in the last century; but they were too apt to burst to be of much service. Iron cannon are not capable of so much

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stance as those of brass, but as they are less expensive they are often used aboard ships, and in several fortified places.

The parts and proportions of cannon about eleven feet long are, the barrel or cavity nine feet; its fulcrum or support fourteen; and its axis seven; the diameter of the bore at the mouth six inches two lines; the plug of the ball two lines; the diameter of the ball therefore six-inches, and its weight thirty-three pounds and one-third; the thickness of the metal about the mouth two inches, and at the breech six; the charge of powder from eighteen to twenty pounds. It will carry a point blank six hundred paces, and may be loaded ten times in an hour, and often more. Cannon often fired must be carefully cooled, or else they will burst.

Cannons are distinguished by the diameters of the balls they carry. The rule for their length, &c. is that it be such that the whole charge of powder be on fire before the ball quit the piece. If it be made too long, the quantity of air to be driven out before the ball, will give too much resistance to the impulse; and that impulse ceasing, the friction of the ball against the surface of the piece will lessen its velocity.

Formerly cannon were made much longer than they are at present; but some being by chance made two feet and a half shorter than ordinary, it was found that they threw a ball with greater force through a less space than the larger. This was confirmed by experience in 1624, by Gustavus Adolphus of Sweden; an iron ball of forty-eight pounds weight being found to go further from a short cannon, than another ball of ninety six pounds out of a longer piece; whereas in other respects it is certain the larger the bore and ball the greater the range.

The greatest range of a cannon is ordinarily fixed at forty-five degrees, but Dr. Halley shews it to be at forty-four and a half. M. S. Julien adjusts the ranges of the several pieces of cannon, from the weight of the ball they bear, the charge of powder being always supposed to be in a subduplicate ratio to the weight of the ball.

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Weight of a Leaden Ball.	Horizontal Range.	Greatest Range.
lb.	Paces.	Paces.
33	600	6000
24	700	6000
16	800	8000
12	450	5000
8	400	1500
6	150	1500

Experience has shewn, that two cannons being of equal bore, but different lengths, the longer requires a greater charge of powder than the shorter. The ordinary charge of cannon is to have the charge of its powder half that of its ball.

The names of the several cannon, their length, weight, and that of their balls, as they obtain among us, are as in the following table :

Names of Cannon.	Wt. of an Iron Ball.	Wt of the Cannon.	Length of the Cannon.	
	lb. oz	lb.	Feet.	Inch.
Cannon royal - -	48 0	8000	12	0
Demy cannon large -	36 0	6000	12	0
Demi cannon ordinary	32 0	5600	12	0
Demi cannon least -	30 0	5400	11	0
Culverin largest -	20 0	4800	12	0
Culverin ordinary - -	17 5	4500	12	0
Culverin least -	15 0	4000	11	0
Demi culverin ordinary	10 11	2700	11	0
Demi culverin least - -	9 0	2000	10	0
Saker ordinary - - -	6 0	1500	10	0
Saker least - - -	4 12	1400	8	0
Minion largest - - -	3 12	1000	8	0
Minion ordinary -	3 4	800	7	0
Falcon - - -	2 8	750	6	0
Falconet - - -	1 5	400	5	6
Rabinet - - -	0 8	300	5	6
Bafe - - -	0 5	200	4	6

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Cannons are made cylindrical, that the motion of the ball may not be retarded in its passage, and that the powder, when on fire, may not slip between the ball and the surface of the cannon, which would hinder its effect.

Wolfius would have the cannon always decrease as it goes towards the mouth or orifice; because the force of the powder always decreases in proportion to the space through which it was expanded.

The new cannon, that are made after the Spanish manner, have a cavity or chamber at the bottom of the barrel, which helps their effect.

A cannon is said to recoil two or three paces after the explosion, which by some is accounted for from the air's rushing violently into the cavity as soon as the ball has been discharged; but the real cause is, the powder's acting equally upon the breech of the cannon and the ball.

Cannons are likewise distinguished according to the diameter of their mouth or calibre. This calibre is divided in consequence of an order from the king of France in thirty-six parts, in order to determine by these parts the dimensions of the different moulds for cannon, the following is the dimensions of five different calibres, as they are regulated by that order.

Pieces of Cannon	of 24			of 16			of 12			of 8			of 4		
	feet	inches	lines	feet	inches	lines	feet	inches	lines	feet	inches	lines	feet	inches	lines
Length of the bore	9	6	0	9	2	0	8	8	0	7	10	0	6	6	0
Depth of the chamber	2	6	0	0	1	10	0	0	0	0	0	0	0	0	0
Thick. of met. at breech	0	5	5	0	4	9	1	4	4	0	3	9	0	3	0
Length of the cascabel	0	10	11	0	9	6	0	8	8	0	7	7	0	6	0
Diam. of the trunions	0	5	5	0	4	9	0	4	4	0	3	10	0	3	0
Projection of the trun.	0	5	5	0	4	9	0	4	4	0	3	10	0	3	0
Calibre of the piece	0	5	8	0	4	11	0	4	6	0	3	11	0	3	2
Diameter of the ball	0	5	6	0	4	9	0	4	4	0	3	9	0	3	0
Len. of the whole piece	11	0	0	10	6	0	10	0	0	8	10	0	7	3	0
Weight of the piece	5400lb.			4200lb.			3200lb.			2100lb.			1150lb.		

See more under the articles *Battery, Cavalier, Embrazures, Guns, &c.*

Cannon Royal, or of eight. A great gun eight inches diameter in the bore, eight thousand pounds weight, the length and thickness in the proportion mention'd in the last article. It carries a charge of thirty-two pounds of powder, and a ball

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ball seven inches and four eights diameter, and forty-eight pounds weight. Its point-blank shot one hundred and eighty five paces.

Cannon Baskets. Vide *Gabions*.

Cannoneer or *Cannonier*, the same as *Gunner*.

Cantoning. Alloting distinct and separate quarters to each regiment of an army; the town, where they are quartered being divided into so many cantons, or divisions, as there are regiments.

Canvas Bags, or *Earth Bags*, are bags containing about a cubical foot of earth. They are used to raise a parapet in haste, or repair one that is beaten down. These are of use when the ground is rocky, and affords not earth to carry on approaches, because they can be easily brought from afar off, and removed at will. The French call them *Sacs a-Terre*, that is, *Earth Bags*. The same bags, upon occasion, are used for powder, and hold fifty pounds.

Cap of a Gun. A piece of lead which is put over the touch-hole of a gun to keep the priming from being wasted or spoiled.

Caparison. A sort of horse-cloth or cover for a horse, frequently made of a bear's skin.

Capital of a Bastion. A line drawn from the angle of the polygon, to the point of the bastion, or from the point of the bastion to the middle of the gorge. These capitals are from thirty-five to forty fathoms in length, from the point of the bastion to the place where the two demigorges meet.

Capitulation. The conditions on which a place that is besieged surrenders, being articles agreed on between the besieged and besiegers. The most honourable and ordinary terms of capitulation are, to march out at the breach with arms and baggage, drums beating, colours flying, a match lighted at both ends, and some pieces of cannon, waggons, and convoys for their baggage, and for the sick and wounded.

Caponiere. A work, or lodgment on the glacis of a place sunk four or five feet into the ground, with a parapet on its sides made with the earth thrown out of it, rising about two feet above the ground, on which they lay planks well covered with earth. They are big enough to lodge 15 or 20 musketeers, who fire upon the besiegers through embrasures made

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made on the sides. These are generally made on the *glacis*, or in dry moats.

Capsquares are strong plates of iron which come over the trunnions of a gun, and keep it in the carriage. They are fastened by a hinge to the prize plate, that they may lift up and down, and form a part of an arch in the middle to receive a third part of the thickness of the trunnions: for two-thirds are let into the carriage, and the other end is fastened by two iron wedges called the forelocks and keys.

Captain. The commander in chief of a company of foot, or troop of horse, or dragoons. He is to march, or fight, at the head of his company. Among the horse, when captains of several regiments meet, he that has the eldest commission takes place and commands; but among the foot, the captain of the eldest regiment commands all that are of younger regiments, tho' they have elder commissions. A captain has the power of making serjeants and corporals in his own company. He ought to be very vigilant, and acquainted with the dispositions of all his men.

Captain-Lieutenant. The commanding officer of the colonel's troop, or company, in every regiment. He commands as youngest captain, tho' in reality he is only lieutenant, the colonel being himself captain. In France there are several captain-lieutenants, as those of the two troops of musquetaires, of gendarmes, and the independent troops of light horse, whereof the king, queen, dauphin, or duke of *Orleans*, are captains. Those of the musquetaires, gendarmes, and light horse, whereof himself is captain, take place as eldest colonels of light horse, and accordingly command all others. The captain-lieutenants of the queen's, dauphin's and Duke of *Orleans's* troops, and the sub-lieutenants of the king's gendarmes, rank with all colonels of horse, according to the date of their commissions.

Captain en Pied. A captain kept in pay, that is not reform'd. The expression occurs sometimes.

Captain Reform'd. One, who upon reducing of the forces loses his company, yet is continued captain, either as second to another, or without post. Vide *Reform'd*.

Captain en Second. Vide *Second*.

Captain des Gaurds, & aux Gardes. Tho' this distinction be peculiar to *France*, it occurs so often, that it requires to

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be explained. The *English* of it is, captain of the guards, or in the guards. *Captain des Gardes*, or captain of the guards, is captain of one of the four troops of horse guards. *Captain aux Gardes*, or captain in the guards, is the captain of a company in a regiment of the foot guards.

Captain General. He who commands in chief. In the horse and foot guards, the captains have the rank of colonels.

Carabine. A small fire arm between a pistol and a musket, used by all the horse. It carries a ball of 24 in the pound, and hangs by a belt over the left shoulder. The barrel is two feet and a half long, and is sometimes furrowed spirally within, which is said to add to the range of the piece.

Carabiniers. Regiments of light horse, carrying longer carabines than the other horse, and used sometimes as foot like the dragoons.

Carcafs. A mischievous invention in the nature of a bomb, and thrown like it out of a mortar-piece. It is composed of fine meal-powder, saltpetre, sulphur, broken glass, shavings of horn, pitch, tallow, and linseed oil; sometimes of two, three, or more granadoes, and several small pistol barrels, charged and wrapped up with the granadoes in tow, dipped in oil, and other combustible matter. The whole is put into a pitched cloth, made up oval, which is set in an iron like a lanthorn, having a hollow top and bottom, and bars running between them to hold them together; these long bars, that join the top and bottom, are bound together by one or more iron rings; all which, in some measure, represents the trunk of a dead carcafs. One of the concave places has a ring to lift, and put it into the mortar-piece; the other has a touch-hole to set fire to the carcafs, which is shot like a bomb upon any place intended to be fired. These carcaffes do not answer so much as was expected from them. There are other carcaffes for the sea-service, which differ from a bomb only in the composition, and the five holes from which it burns when fired.

Caripi, a kind of cavalry in the Turkish army, which to the number of 1000 are not slaves, nor bred up in the *seraglio*, like the rest, but are generally moors, or renegade christians, who, having followed adventures, and being poor, and

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and having their fortune to seek by their dexterity and courage, have arrived to the rank of horse-guards to the Grand Signior.

Carr, a kind of chariot or throne mounted on wheels, and used in triumphs and other solemn occasions.

Carriage of a Cannon. The frame or timber-work on which it is mounted, serving both to point for firing, and to carry it from place to place. It is made of two planks of wood, commonly one-half the length of the gun, called the cheeks, and joined by three wooden transoms strengthened with three bolts of iron. It is mounted on two wheels; but on a march, in order to convey it with greater ease, it has two fore-wheels with limbers added to it. The principal parts of a carriage are the cheeks, transoms, bolts, plates, train, bands, bridge, bed, hooks, trunion-holes, and cap-squares.

Block Carriage. A cart made on purpose for carrying mortars and their beds from place to place.

Truck Carriage. Two short planks of wood supported on two axle-trees, having four trucks of solid wood for carrying mortars or guns upon batteries, where their own carriages cannot go: they are drawn by men.

To carry on the Trenches. Vide *Trenches*.

Cartel. An agreement between princes at war, for the exchange of prisoners. It is also used for a letter of defiance, or a challenge, to decide a controversy either in a tournament, or in a single combat.

Cartouch. A case of wood about three inches thick at bottom, girt round with marlin, holding about 400 musket balls, besides six or eight balls of iron of a pound each. It is fired out of a haubitz, a small sort of mortar used to defend a pass. Other sorts, of different inventions, have been made for mortars, and some for great guns, to use instead of partridge shot.

Cartridge. A roll of paper, pasteboard, or parchment, like a case made to contain the charge of any fire arm. Cartridges for pistols and muskets are made of paper, which is sufficient to contain that charge of powder and ball; but they are of pasteboard or parchment, to hold the shot, broken iron, and powder to charge cannon, when it is to fire near at hand. In cannon of cazemattes, or other posts that defend the passage of the ditch, or the like, these have a dreadful

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effect. Those of cannon or mortars are usually in cases of pasteboard or tin, sometimes of wood half a foot long, adapted to the calibre of the piece.

Cartridge Box. A case of wood, or turned iron, holding a dozen musket charges. It is worn upon a belt, and hangs a little higher than the right pocket hole.

Cascabel. The very hindmost knob of the cannon, or utmost part of the breech.

Cascans. Holes in form of Wells, serving as entries to galleries to give vent to the enemies mines.

Case-shot. Musket balls, stones, old iron, &c. put into cases, and shot out of great guns.

Casemate. It is used for a well with several subterraneous branches dug in the passage of the bastion, till the miner is heard at work, and air given to the mine.

Caserns. Lodgings built in garrison towns, generally near the rampart, or in the waste places of the town, for lodging the soldiers of the garrison. There are usually two beds in each casern for six soldiers to lie, who mount the guard alternately; the third part being always on duty.

Castle. A place strong either by art or nature, whether in a city, or in the country, to keep the people in obedience. A sort of a little citadel. See *Citadel*.

Cavalier, or Mount. A great elevation or mass of earth, sometimes round, and sometimes a long square, usually situated in the gorge of a bastion. On the top of it is a platform, with a parapet to cover the cannon thereon, and embrasures to fire them thro'. The height of it must be proportionable to that part of the enemy's ground, or works it is designed to overlook or command. Those which are raised upon the enclosure of any place, whether in the middle of the curtain or in the gorge of a bastion, are generally 15 or 18 feet higher than the *terre plain* of the rampart. The breadth of them is to be regulated by the number of cannon designed to be planted on them, observing that there must be 10 or 12 feet distance allowed between every two guns, for the convenience of the gunners. They are a double defence for the faces of the opposite bastion, defend the ditch, break the enemies galleries, command the traverses in dry moats, scour the saillant angle of the counterscarp, and enfilade the enemies trenches,

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or oblige them to multiply their parallels; they are likewise very serviceable in defending the breach, and the retrenchments of the besieged, and can very much incommode the intrenchments which the enemy make, being lodged in the bastion.

Cavalry. That bo'y of soldiers that serves and fights on horseback. These are either regimented, or independent troops, as the troops of guards in England; and in France the gendarmes, and musquetaires on horseback. All these upon service are drawn up in bodies, called squadrons, a number of which form a brigade.

They may properly be called the right arm of the army, and are of very great service in disturbing the enemy by their frequent excursions, in intercepting convoys, and destroying the country. The cavalry is divided into squadrons, and encamped on the wings of the army. Too great a number of cavalry may prove prejudicial to an army: for as they consume a great deal of forage, they may oblige a general to decamp from an advantageous post.

Cavin. A natural hollow, fit to cover troops, and facilitate their approach to a place. If it be within musket-shot, it is a place of arms ready made to hand, and a conveniency for opening the trenches, out of fear from the enemy's shot.

Cazematte. A platform in that part of the flank of a bastion next the curtain, somewhat retir'd, or drawn back towards the capital of the bastion. Sometimes it consists of three platforms, one above another, the *Terre plain* of the bastion being the highest; for which reason the French give the others the names of *places basses*, or low places. Behind their parapet, which fronts along the line of the flank, there are guns planted, loaded with cartridges of small shot, to scour along the ditch; and these guns are covered from the enemy's batteries by circular, or sometimes square earth works, faced or lined with wall, and called *orillons*, *shoulders*, or *époulements*. The *cazematte* is the most excellent defence a place can have.

It is very seldom that cazematts are used now, because the enemies batteries are liable to bury the cannon, they contain under the ruin of their vaults; besides that, the smoke with which they are continually filled, renders them insupportable to the engineers; for which reason engineers now make them open at top, contenting themselves with fortifying them with a parapet.

Cen-

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Center. The middle point of any work or body of men. The pikes used to be in the center of the battalion; the infantry, and among them, the youngest regiments, are in the center of the army. From the center of a place are drawn the first lines to lay down the form of a fortification.

Center of a Bastion. A point in the middle of the gorge of a bastion whence the capital line commences, and is generally at the angle of the inner polygon. See *Bastion*.

Centefimation. A mild kind of military punishment, in cases of desertion, mutiny, and the like, when only every hundredth man is executed.

Centry-Box. The same as *Guerritte*, only the former is of wood, and the other of stone. It is a wooden cell, or lodge, to shelter the centinel or centry from the injuries of the weather. In a fortification they are usually placed on the flanked angles of the bastions, on those of the shoulder, and sometimes in the middle of the curtain.

Chace of a Gun. The whole length of it.

Chain for Engineers, is nothing but a sort of wire-chain, divided into links of an equal length, which engineers make use of for setting out works on the ground, because the line is apt both to shrink and give way.

Chain Shot. Vide *Shot*.

Challenge or Cartel. An invitation to a duel or combat.

Chamade. A signal made by the enemy, either by beat of drum, or sound of trumpet, when they have any matter to propose. Otherwise called, *to sound*, or *beat a parley*, which is the more proper *English*: but *chamade* begins to grow familiar, as do all other *French* terms in martial affairs. We say, *the besiegers beat the chamade or parley, to have leave to bury their dead; the besieged beat the chamade or parley, when they capitulated.*

Chamber of a Gun. That part of the chace where the powder and shot lie.

Chamber of a Mine. Vide *Foucade*.

Chamber of a Mortar. Where the powder lies also. It is much narrower than the rest of the cylinder, and of different forms; but the most common form is cylindrical.

Chamber of a Battery. Called powder chamber, or bomb chamber. A place sunk under ground, for holding the powder

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der or the bombs, where they may be out of danger, and preserved from rains.

Chandeliers. Wooden frames, large and strong, to pile faggots against, one upon another, to cover the workmen instead of a parapet. These are to remove from place to place, as occasion requires, upon sudden emergencies, or whilst the trenches are digging. Sometimes they are only strong planks, with two pieces of wood perpendicular, for the fascines to bind between: but they are made in other forms for other occasions.

Chape. The metalline plate fixed on the end of a scabbard, to prevent the point of the sword from piercing through it.

Charge. The quantity of gunpowder and ball, where-with a gun is loaded for execution.

The rule for charging large pieces in war are, that the piece be first cleansed or scoured within side; that the proper quantity of powder be next driven in, and rammed down: care however being taken, that the powder, in ramming, be not bruised, because that weakens its effect; that a little quantity of paper, hay, lint, &c. be rammed over it; and that the ball or shot be intruded.

If the ball be red-hot, a tampion, or trencher of green wood, is to be driven in before it.

The weight of the powder necessary for a charge is commonly in a subduple proportion to that of the ball. See the articles *Cannon, Gun, Shot, Caliber, &c.*

Charged Cylinder, or Chamber. That part of a cannon which contains the powder and shot.

Chause Trape, or Chausse-trape, the same as *Caltrop*.

Chausse. Res de Chausse. The level of the field, the plain ground.

Cheeks of a Mortar. Strong planks of near a semicircular form, bound with thick iron plates, and fixed by bolts to the bed. They keep the mortar at any given elevation.

Chemins Couverts. See *Covert Way*.

Chemin des Rondes or *Way of the Rounds.* A space between the rampart, and the low parapet under it, for the rounds to go about. It is the same as the *Fausse Braye*. Vide *Fausse Braye*.

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Chemise. A word almost out of date, formerly signifying the wall that faced or lined a work of earth, especially when the soil was sandy and loose, and therefore could not support itself, without allowing it too great a *talus*, or *stoop*.

Chevaux de Frise. The same as turnpikes; only some will have it, that the *chevaux* are stronger than the turnpikes: but there is no other difference than in the language, one being the French, the other the English name; yet both indifferently now used in England, and the French rather the most. See *Turnpike*.

Chevette. An engine for raising of guns or mortars into carriages. It is made of two pieces of wood, about four feet long, standing upright upon a third-square piece; the upright pieces are about a foot asunder, and pierced with holes exactly opposite each other, having an iron bolt, which being put through these holes higher or lower, at pleasure, serves with a hand-spike, which takes its poise over this bolt, to raise any thing by force.

Cinquain. An antient order of battle, to draw up five battalions so that they may make three lines, that is a van, main body, and body of reserve. Supposing the five battalions to be in line, the 2d and 4th advance and form the van, the 3d falls back for the rear guard, or body of reserve, the 1st and 5th form the main body upon the same ground. Then every battalion ought to have a squadron of horse on its right, and another on its left. Any number of regiments produced by the multiplication of the number 5, as 10, 15, 20, &c. may be drawn up in the same manner.

Circumvallation. A line, or trench, with a parapet, thrown up by the besiegers, a cannon-shot from the place, encompassing all their camp, to defend it against any army that may attempt to relieve the place: so that the army besieging lies between the two lines of contravallation and circumvallation, the former against the besieged, and the latter against those that shall pretend to relieve them. The top of the line of circumvallation is generally about seven feet deep, and about 12 feet broad. The parapet runs quite round the top of it, and at certain distances it is strengthened with redoubts and small forts. The base of it is generally about eight feet wide, the height within six, and on the outside five, with a banquet of three feet wide, and one and a half high. The line of cir-

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circumvallation must never run along the foot of rising ground, because, if any enemy shall possess himself of the height, he might plant cannon there, and command the line.

Citadel. Is a fort with four, five, or six bastions, raised on the most advantageous ground about a city, the better to command it, and commonly divided from it by an *esplanade*, or open space, the better to hinder the approach of any enemy. So that the citadel defends the inhabitants, if they continue in their duty, and punishes them if they revolt. Besiegers always attack the city first, that, being masters of it, they may cover themselves the better against the fire of the citadel. Its having bastions distinguishes it from a castle. Sometimes the citadel stands half within and half without the ramparts of the place.

The best form for a citadel is a pentagon, -a square being too weak, and a hexagon too big.

Clayer. Are the same we commonly call *Hurdles*, or *Wattles*, being made of strong stakes, interwoven with ozers, or other small pliable twigs, and the closer the better. They are generally about five or six feet long, and three, or three and a half broad. The use of them is to cover lodgments overhead, with much earth heaped on them to secure the men against the fire works, and stones thrown by the besieged. They are also cast into a ditch that has been drain'd, for the besiegers to pass over on them without sticking in the mud.

To clear the Trenches. To beat out those that are to guard them with a vigorous sally from the place besieged; to throw down the parapet, fill the trench, and nail the cannon.

Clerk of the Ordnance. An officer that registers all orders concerning the king's ordnance in the tower of London.

Close fire. See *Reverberation*.

Clouts. Thin plates of iron nailed on that part of the axletree of a gun's carriage, which comes through the nave, through which the lins-pin goes.

To Cloy Guns. Vide *To Nail*.

Clypeus or *Clypeum.* A shield or buckler. See *Shield*.

Coffre. A depth sunk in the bottom of a dry ditch, of about six or seven feet wide, and the length of it the whole breadth of the said ditch from side to side. It is covered with joists, hurdles, and earth, rais'd two feet above the bottom.

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bottom of the ditch ; which rising serves instead of a parapet, with loop holes in it : and this work being made at leisure by the besieged, serves to fire from on the besiegers, when they attempt to cross the ditch. Its length distinguishes the *Coffre* from the *Caponniere*, which does not reach the whole breadth of the ditch ; and it differs from the *Traverse* and *Gallery*, in that these two are made by the besiegers, and the *Coffre* by the besieged. The besiegers *epaule*, or cover themselves against the *Coffres*, by throwing up the earth on that side on which the musketeers in it fire.

Coffre, is also taken for the same as *Caisson*. Vide *Caisson*.

Colonel. The commander in chief of a regiment, either horse, foot, or dragoons, in *England* ; but in *France* and *Spain* they call the Colonels of horse *Maitres de Camp*. Colonels of foot take place, and command one another, according to the antiquity of their regiments, and not of their commissions ; but those of horse, on the contrary, according to the date of their commissions, without regard to the antiquity of the regiments. Their posts at the head of the regiments is three paces before the captains. Generals of horse, foot, and dragoons are usually colonels, whose authority extends particularly over each of their respective bodies. A colonel may lay an officer of his regiment in arrest, but must acquaint the general with it. He is not allowed a guard, but only a centinel from the quarter guard.

Colonel Lieutenant. He who commands a regiment of guards, whereof the king, prince, or other person of the first eminence is colonel.

Colours. Include the banners, flags, ensigns, &c. of all kinds, borne in the army or fleet. See *Flag*, *Standard*, &c.

Column. The long file, or row of troops, or of the baggage of an army on its march. So, 'To march in a column,' or in a long file, instead of making a large front. An army marches in one, two, three, or more columns, according as the ground will allow, and the chief general sees expedient, each column being led by a general officer.

Combat, implies an engagement or difference decided by arms.

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Command. Word of command. The terms used by officers in exercise, or upon service.

Commanding Ground. A rising ground which overlooks any post, or strong place. There are three sorts of Commanding Grounds.

A Front Commanding Ground. A height opposite to the face of the post which plays upon its front.

A Reverse Commanding Ground. An eminence, which plays upon the back of a post.

An Enfilade Commanding Ground, or Curtain Commanding Ground. A high place which with its shot scours all the length of a line.

Commissary General of the Musters, or Muster Master General. He that takes account of the strength of every regiment, as often as the general pleases; reviews them, sees the horse be well mounted, and all the men well armed and accoutred. He receives and inspects the muster rolls, and knows exactly an army's strength.

Commissary General of the Stores. An officer in the artillery, who has the charge of all the stores, for which he is accountable to the office of ordnance. He is allowed an assistant, clerks, and conductors under him.

Commissary of the Horse. An officer likewise of the artillery, who has the inspection of the artillery horses, having under him a number of conductors of horses for his assistants.

Commissary General of Provisions. Has the charge of furnishing the army with all sorts of provisions, and must be very vigilant and industrious, that they may never suffer want.

Commission. The authority by which every officer acts by his post, signed by the king, or by his general, if he be impowered.

Commission Officers. Vide *Officers*.

Communication. See *Line of Communication*.

Company. A small body of foot, the number never fixed, but generally from 50 to 80, commanded by a captain, who has under him a lieutenant and an ensign, and sometimes two lieutenants. A company has usually three serjeants, three corporals, and two drums. In the guards the companies consist of 80 men each. Formerly two thirds

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thirds of the company were armed with muskets, and the rest with pikes.

There are thirteen companies to constitute a battalion, one of which is always grenadiers, and posted on the right: next them stand the eldest company, and on the left the second: the youngest one being always posted in the centre.

Independent Company, or Irregular Company. That which is not incorporated in a regiment.

Complement of the Curtin. Is that part of the interior side which forms the demigorge. See *Curtain*.

Complement of the Line of Defence, is the remainder of the line of defence, after the angle of the flank is taken off.

Conduitors. Are assistants given to the commissary of the stores, to receive or deliver out stores to the army, to attend at the magazines by turns, when in garrison, and to look after the ammunition waggons when in the field. They deliver their accounts to the commissary, and are immediately under his command.

Contramure. A wall built before another partition wall to strengthen it, so that it may receive no damage from the adjacent buildings. See *Wall, Rampart*.

Contravallation. A trench guarded with a parapet, which the besiegers cover themselves with, next the place besieged, to defend them against the sallies of the garrison: so that the army, forming a siege, lies between the lines of circumvallation and contravallation. This line is carried on without musket shot of the town, and sometimes goes quite round it, sometimes not, according as the general sees occasion. It should be made in the same manner as the line of circumvallation. Which word see.

Contre Queue d'Yronde, or Counter Swallow's Tail. An outwork in the form of a single *Tenaille*, wider next the place, that is, at the gorge, than at the head, or next the campaign; which is the contrary to the *Queue d'Yronde*, or *Swallow's Tail*, this being the widest at the head. The sides of the *Contre Queue* are not so well flanked from the place as those of the *Queue d'Yronde*, or *Swallow's Tail*, and therefore it is not so good.

Contribution. An imposition, or tax, paid by all frontier countries, to redeem themselves from being plundered and destroyed by the enemy.

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Conversion. A military motion, which turns the front of a battalion where the flank was, when the flank is attacked.

As this may often be the case in action, this motion is accounted a most useful and necessary one. See the article *Quarter-wheeling*.

Convoy. A body of men that is a guard or security in conveying through a dangerous pass. A supply of men, money, ammunition, and provisions, conveyed into a town, or to an army. The body of men likewise that marches to secure any thing from the enemy is called a convoy.

Copper-Boats. Vide *Bridge*.

Corbeilles. Vide *Baskets*.

Cordeau. A line divided into fathoms, feet, &c. to mark outworks on the ground, used by engineers.

Cordon. A row of stones made round on the outside, and set between the wall of the fortress, which lies aslope, and the parapet which stands perpendicular, after such a manner, that this difference may not be offensive to the eye: whence the cordons serve only as an ornament, ranging round about the place, being only used in fortification of stone-work. For in those made with earth, the void space is filled up with pointed stakes.

Coridor. Vide *Covert-way*.

Cornet. The third commission officer belonging to every troop of horse, subordinate to the captain and lieutenant, equivalent to the ensign among the foot. His principal duty is to carry the standard, near the middle of the first rank of the squadron.

This is a very honourable post: he commands in the absence of the lieutenant.

Cornish-ring of a gun. The next ring from the muzzle backwards.

Corporal An inferior officer of foot, under a serjeant, who has charge of one of the divisions of a company, places and relieves centinels, and keeps good order in the *Corps de Garde*. He receives the word of the inferior rounds that pass by his *Corps de Garde*. Every company, if small, has usually three corporals; but more, if numerous.

Corps

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Corps de Garde. A post sometimes under covert, and sometimes in the open air, to receive a number of men who are relieved from time to time, to watch in their turns for the security of some more considerable post. This word *Corps de Garde*, does not only signify the post, but the men in it.

Corps de Bataille. The main body of an army drawn up for battle, whereof the first line is called the *Van*, the second the *Corps de Bataille* or *Main Bataille*, and the third the *Corps de Reserve*, *Body of Reserve*, or *Rear Guard*. Vide *Battle*.

Corps de Reserve. Vide *Line of Battle*, and *Rear Guard*.

Corselet. A little cuirass; or, according to others, an armour or coat made to cover the whole body, antiently worn by the pikemen, usually placed in the front and flanks of the battle, for the better resisting the enemy's assaults, and guarding the soldiers placed behind them.

Covert-way. In *French*, *Chemin, Covert*, or *Corider*. A space of ground level with the field, upon the edge of the ditch, three or four fathoms wide, and covered with a parapet, or breast-work, running all round the moat, and sloping gently towards the campaign. It has also a foot bank or banquet. One of the greatest difficulties in a siege is to make a lodgment on the *Covert-way*, because generally the besieged pallisadoe is along the middle, and undermine it on all sides. This is commonly called the *Counter-scraps*, because it is on the edge of it. The slope is called the *glacis*. The parapet of a *Covert-way* is about six feet high, and forms a saillant angle before the curtain, which serves for a place of arms.

Council of war. An assembly of the principal officers of the army or fleet, occasionally called by the general or admiral, to concert measures for their conduct with regard to sieges, retreats, engagements, &c. &c.

Counter Approaches. Lines or trenches carried on by the besieged, when they come out to attack the lines of the besiegers in form, or prevent approaches. See *Counter Trenches*.

Line of Counter Approaches. A trench which the besieged make from their covered way to the right and left of the attacks, in order to scour the enemies works. The line must

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must be perfectly enfiladed from the covered way and the half moon, that it may be of no service to the enemy, in case he gets possession of it.

Counter Breast-work. See *Fausse Braye*.

Counter Forts. Spurs or buttresses, serving as props to a wall subject to bulge or be thrown down.

Counter Battery. A battery that plays upon another, to dismount the guns.

Counter Guards, in *French Contre Guard*, or *Envelope*. A small rampart, with a parapet and ditch, to cover some part of the body of the place. There are Counter Guards of several shapes, and differently situated. Those raised before the point of a bastion consist of two faces, making an angle saillant, and parallel to the faces of the bastion. Those which cover one of the faces of the bastion, are shaped like a demi-bastion, with a parapet upon the face and capital, but none on the flank, which must be open and exposed to the fire of the place. This name of *Counter Guard* is not so much in use at present among the engineers, who call it usually an *Envelope*.

Counter Line. Vide *Contravallation*.

Counter-march. When the files countermarch, it changes the face, or front, of the battalion; and when ranks countermarch, it is exchanging the wings of the battalion. The files countermarch to bring those that are in the front to the rear, which is proper when a battalion is charged in the rear, and the commander would have the file leaders, who are generally chosen men, and take the place of bringers up. The ranks countermarch, when it is required that one wing of the battalion should exchange its ground with the other. An army countermarches to disappoint or amuse an enemy, when going suddenly to any project. It also signifies returning or marching back again.

Counter mine. A well, or hole, sunk in the ground, from which a gallery or branch runs out under ground, to seek out the enemy's mine, and disappoint it. The word is also used when the besiegers have passed the fort, and put the miner to the foot of the rampart. These countermines are either made when the bastion is raised, or afterwards when it is attacked.

Counter-

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Counter-mare. A wall built close to another, that it may not receive any damage from the contiguous buildings.

Counter-Round. A body of officers going to inspect the rounds.

Counterscarpe. Is properly the exterior *talus*, or slope of the ditch, on the farther side from the place, and facing it. But by this name is commonly meant the *Covert-way* and *Glacis*, and in this sense, it is said the enemy, 'attacked the Counterscarpe, or lodged themselves on the Counterscarpe.'

Counterscarpe, Ditch of the Counterscarpe. Vide *Avant Fosse*.

Counter Swallow's Tail. See *Contre Queue d'Yronde*.

Counter Trenches. Trenches cast up against the besiegers, which consequently have their parapet towards them, and are enfiladed from several parts of the place, to hinder the enemy from making use of them, when they are masters of them. But care must be taken that they be not enfiladed, or commanded by any eminence possessed by the enemy. See *Approaches*.

Counter Vallation. A ditch made round a besieged place, to prevent the garrison from making sallies. See *Contravallation*.

Counter-Working. The raising of works to oppose those of the enemy.

Court Martial. A court appointed for the punishing offences in officers, soldiers, &c. the power of which is regulated by the mutiny bill.

Courtain or Curtin. See *Curtin*.

Cradle. That part of a cross-bow where the bullet is put.

Crest. The top part of the armour for the head, mounting over the helmet, in manner of a comb, or tuft of a cock, deriving its name from *Crista*, a cock's comb. It is for the most part composed of feathers, or hair of horses tails or mains.

Croats. Properly the people of *Croatia*: but in France there is a regiment of horse so called, because at first they were of that nation, though now they are all *French*, as are those they still call the *Scotch Gendarmes*. These *Croats* are commanded upon desperate services; and therefore in a battle

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battle they are posted on the wings, a little advanced before the other squadrons, upon the line with the dragoons. See *Pandours*.

Cross-bar-shot. A bullet with an iron bar passing through it, and standing six or eight inches out at both sides: it is used at sea, for destroying the enemy's rigging.

Cross-Battery. See *Battery*.

Crown Work. In French *Ouvrage a Couronne*. An out-work that takes up more ground than any other. It is made up of a large gorge, and two sides terminating towards the field, in two demi bastions, each of which is joined by a particular curtain to a whole bastion, that is at the head of the work. Crown works are made to cover some large spot of ground, to secure some eminence, or to defend the head of a camp that is intrenched.

Crowsfeet, Caltrops, or Chauffe-trapes. Machines of iron, having four points, each about three or four inches long, so made, that whatever way they fall there is still a point up: they are thrown upon breeches or in passes, to incommode the cavalry, that they may not approach without great difficulty; the point that sticks up running into the horses feet, and laming them.

Crowned Horn-work. A horn-work with a crown-work before it. See *Crown-work*.

A Cube. A general mathematical term, signifying a solid body, every way square.

Cubical. The body that is so solid and square: as a Cubical Foot, that is, a foot square every way of any substance.

Cuirasse. A piece of defensive armour, made of iron plate, well-hammered, serving to cover the body, from the neck to the girdle, both before and behind.

Cuirassiers. Horse that wear armour, as back, breast, and head-pieces. Most of the German cavalry are Cuirassiers, as are also some of the French; but we have had none in England since the revolution.

Culverin of the least size. A gun five inches diameter in the bore, 400lb. weight, takes a charge of ten pounds of powder, and carries a ball four inches and six eighths diameter, and 16 pounds weight. Its random shot is 180 paces.

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Culverin Ordinary. Is five inches two eighths diameter in the bore, 4500 pounds weight, takes 11 pounds 6 ounces charge of powder, and carries a ball 5 inches diameter, and 18 pounds weight.

Culverin of the largest size, is 5 inches 4 eighths diameter in the bore, 4800lb. weight, takes a charge of 12 pounds 8 ounces of powder, and carries a shot 5 inches and 2 eighths diameter, and 20lb. weight. This and the last are good battering cannon, but too heavy for field service.

Cunette or *Curvette.* See *Curvette.*

Curfew or *Courfew.* A signal given in cities, taken in war, &c. to the inhabitants to go to bed, introduced to prevent the inhabitants being plundered and ill-treated by the soldiers in their debaucheries.

Curtin. That part of the wall, or rampart, that lies between the flanks of two bastions, bordered with a parapet 5 feet high, behind which the soldiers stand to fire upon the covered way, and into the moat. As it is the best defended of any part of the rampart, besiegers seldom carry on their attacks against it, because it is the best flanked of any part, but on the faces of the bastions, which are defended but by one flank.

Cutting off. Vide *Retrenchments.*

Curvette or *Cunette.* A deeper trench cut along the middle of the dry ditch, and generally carried down 'till there be water to fill it. This is a ditch within a ditch, and runs all the length of it, the better to keep off the enemy. The breadth of it ought to be 18 or 20 feet. It is good to prevent the besiegers mining.

Cylinder. Concave Cylinder of a gun, all the hollow length of a piece, or the bore.

Charged Cylinder. The chamber, or that part which receives the charge of powder and shot.

Vacant Cylinder. That part of the hollow which remains empty when the gun is charged.

D

DECAGON. A polygon figure that has ten sides and as many angles, capable of being fortified with ten bastions.

To Decamp. To raise the camp, to break up from the place where the army lay encamped, and march away.

Decamping, is the marching of an army from the ground where it before lay encamped. See *Camp*.

Defence. Line of *Defence*. Vide *Line*.

Defence of a Place. All those parts of a fortification that flank other parts, as the *Parapets*, *Cazemattes*, or *Fausse Brayes*, which face and defend those posts that are opposite to them. It is almost impossible to fix the miner to the face of a bastion, 'till the defences of the opposite bastion are ruined; that is, 'till the parapet of its flank is beaten down, and the cannon in all parts, that can fire upon that face which is attacked, are dismounted.

To be in a posture of Defence, is to be ready and provided to oppose an enemy. As 'Our redoubt is in a good posture of defence;' that is, the work of it is finished, and it can oppose an enemy.

Defile. A narrow pass, or way, where troops cannot march but by making a small front, and therefore are forced to file off, which gives the enemy an opportunity of charging them more advantageously, because the rear cannot come up to relieve the front.

To D file. Is to reduce an army to a small front, to march through such a narrow passage.

Degree Though this term properly belongs to geometry, it is so often used in fortification, that it will not be improper to declare it is a small part of an arch of a circle, whereof every circle contains 360, which serve to measure the content of the angle. So we say an angle is of 20, of 50, or of 70 degrees, or more. Vide *Angle*.

Demi Bastion. Vide *Bastion*.

Demi Cannon lowest. A great gun that carries a ball of 30lb. weight, and 6 inches diameter. Its charge of powder 14lb. It shoots point blank 156 paces. The weight of it 5400lb. the length 10 or 11 feet. The diameter of

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the bore 6 inches, two 8 parts. Carries point blank 156 paces.

Demi Cannon Ordinary. A great gun 6 inches 4 eights diameter in the bore, 12 or 13 feet long, weighs 5600lb. takes a charge of 17 pounds 8 ounces of powder, carries a shot 6 inches 1 sixth diameter, and 32lb. weight, and carries point-blank 162 paces.

Demi Cannon of the greatest size. A gun 6 feet, 6 eight parts diameter in the bore, from 12 to 14 feet long, 6000lb. weight; takes a charge of 18lb. of powder; carries a ball 6 inches 5 eights diameter, and 36lb. weight. This piece shoots point-blank 180 paces.

Demi Culverin of the lowest size. A gun 4 inches 2 eighths diameter in the bore, 8 or 9 feet long, 2000lb. weight; takes a charge of 6 pound 4 ounces in powder, carries a ball 4 inches diameter and 9lb. weight, and shoots point-blank 174 paces.

Demi Culverin Ordinary. A gun 4 inches 4 eighths diameter in the bore, 9 feet long, 2700lb weight, charged with 7 pound 4 ounces of powder; carries a ball 4 inches 2 eighths diameter, and 10 pounds 11 ounces weight. It shoots point-blank 175 paces.

Demi Culverin elder sort. A gun 4 inches and 6 eights diameter in the bore, ten feet in length, 3000 pounds weight, charged with 8 pound 8 ounces of powder, and carries a ball 4 inches 4 eighths diameter, and 12 pounds 11 ounces weight. Its point-blank shot 178 paces. The Demi Culverins are very good field pieces.

Demi Gorge. Half the gorge, or entrance into the bastion, not taken directly from angle to angle where the bastion joins to the curtain, but from the angle of the flank to the centre of the bastion, or angle the two curtains would make, were they protracted to meet in the bastion. That part of the polygon which remains after the flank is raised, and goes from the curtain to the angle of the polygon. Vide Gorge.

Demi line, Half Moon. An out-work consisting of two faces and two little flanks, frequently built before the angle of a bastion, and sometimes also before the curtain, though now much disused.

Depth of a Squadron or Battalion. The number of men there is in a file. That of a squadron there is always three, and

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and that of a battalion generally fix. So we say, the battalion is drawn up six deep, or five deep.

Descents. The holes, vaults, and hollow places made by undermining the ground.

Descents into the ditch. Trenches or guts made by way of *Sappe*, in the ground of the counterscarpe, under the *Covert way*, and covered with *madriers*, that is, planks, or with *Clays*, that is, hurdles close bound together, and well loaded with earth, to secure them against fire. In ditches that are full of water, the descent is made even to the superficies of the water, and then the ditch is filled with faggots fast bound and covered with earth. In dry ditches the *Sappe* is carried down to the bottom, and they make *Traverfes* in it, either to lodge themselves, or secure the miner.

Deserter. A soldier that runs away to the enemy, or that quits the service without leave, or runs from one regiment to another. A deserter is, by the articles or war punishable by death, and, after conviction is, if in camp, hanged at the head of the regiment he deserted from, with his crime writ on his breast; and suffered to hang till the army leave that camp, for a terror to others.

Detached Pieces, are such out-works as are at a distance from the body of the place, as demi-lines, ravelines, bastions, &c.

Detachment. A number of men drawn out of one or more greater bodies; either to mount guards, make an attack, scour the country, or other service. Sometimes a flying army is made up of detachments instead of whole regiments. A detachment of 2 or 3000 men is a command for a brigadier; eight hundred for a colonel; 4 or 500 for a lieutenant-colonel. A captain never marches on a detachment with less than 50 men; a lieutenant, ensign, and two serjeants. A lieutenant is allowed 30, and a serjeant 10 or 12 men. Detachments are sometimes made of entire squadrons and battalions.

Diagonal. A right line drawn across a quadrangular figure from one angle to another, by some called a diameter, and by others the diameter of the figure.

To Dismount. The vulgar and general meaning is to unhorse, as, to dismount cavalry: but,

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To Dismount Cannon, is to throw them off the carriages, break these, and render them unfit for service.

Dispart. To dispart a cannon, is to set a mark on the muzzle ring to be of an equal height, or level with the base ring; so that a line drawn between them shall be parallel to the axis of the concave cylinder, for the gunner to take aim by it at the mark he is to shoot; for the bore and this being parallel, the aim taken by it must be true. This line is called *the dispart of a gun*, and is found by a pair of calliber compasses. The common way of doing this, is to take the two diameters of the base-ring, and of the place where the dispart is to stand, and divide the difference between them into two equal parts, one of which will be the length of the dispart, which is set on the gun with wax or pitch, or fastened there with a piece of twine or marlin. By means of an instrument it may be done with all possible nicety.

Distance of the Bastions, is the site of the exterior polygon. See *Polygon*.

Ditch. Vide *Moat*.

Dutch of the Counterscarp. Vide *Avant Fosse*.

Diversion. Is when an enemy is attacked in one place where they are weak and unprovided; in order to draw off their forces from another place, where they have made, or intended to make, an irruption. Thus the Romans had no other way in their power of driving Hannibal out of Italy, but by making a diversion in attacking Carthage.

Divisions of a Battalion. The several parcels into which a battalion is divided in marching, consisting generally of about six files each, and led by the lieutenants and ensigns, the captains marching in the front and rear. The divisions of an army are the brigades.

Dodecagon. A figure that has twelve sides, and as many angles; capable of being fortified with the same number of bastions.

Donjon, is a place of retreat, to capitulate with more advantage, in case of necessity.

Dossier. A basket of a peculiar form, flat on one side, for the men to carry earth in upon their backs.

Double Bastion. See *Bastion*.

Double Tenaille. Vide *Tenaille*.

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To Double. To put two ranks into one, or two files into one, according as the word of command expresses it. As *Double your ranks*, is for the second, fourth, and sixth ranks to march into the first, third and fifth; so that of six ranks they make but three, leaving double the interval there was between them before; which is not so when they *Double by half files*, because then three ranks stand together, and the three others come up to double them; that is, the first, second and third, are doubled by the fourth, fifth and sixth, or the contrary. *Double your files*, is for every other file to march into that which is next to it on the right or left, as the word of command directs, and then the six ranks are turned into twelve, the men standing twelve deep, and the distance between the files is double what it was before.

Dragoons. Musqueteers mounted, who serve sometimes on foot, and sometimes on horseback; being always ready upon any thing that requires expedition, as being able to keep pace with the horse, and do the service of foot. In battle, or upon attacks, they are commonly the *enfants perdus*, or forlorn hope, being the first that fall on. In the field they encamp either at the head of the army, or on the wings, to cover the others, and be the first at their arms. They are divided into brigades, as the cavalry, and each regiment into troops, each troop having a captain, lieutenant, cornet, quarter master, two serjeants, three corporals, and two drums. They are very useful on any expedition that requires dispatch, as they can keep pace with the cavalry, and do the duty of infantry: they encamp generally on the wings of the army, or at the passes leading to the camp; and sometimes they are brought to cover the general's quarters: they do duty on the generals of horse and dragoons, and march in the front and rear of the army. Their martial music is drums, and sometimes bassoons and hautboys.

Draught-hooks, are large hooks of iron, fixed on the cheeks of a cannon-carriage, two on each side, one near the trunnion hole, and the other at the train, distinguished by the name of fore and hind draught-hooks. Large guns have draught-hooks near the middle transom, to which are fixed the chains that serve to keep the shafts of the limbers on a march. The fore and hind hooks are used for draw-

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ing a gun backwards or forwards by men with strong ropes, called draught-ropes, fixed to these hooks.

Draw-bridge. A bridge made after the manner of a floor, to draw up or let down, as occasion serves, before the gate of a town or castle. It may be made after several different ways, but the most common are made with plyers, twice the length of the gate, and a foot diameter. The inner square is traversed with a cross which serves for a counter poise; and the chains which hang from the extremities of the plyers to lift up or let down the bridge, are of iron or brass.

Drain. A trench cut to draw the water out of a moat. As soon as the moat is drained, they cast into it a claye, covered with earth, or bundles of rushes with planks on them, to make a passage over the mud.

Droit Attacks. Vide *Attacks*.

Drum. A military musical instrument in form of a cylinder, hollow within, and covered at the ends with vellum, which is stretched or slackened at pleasure by the means of small cords and sliding knots. It is beat with sticks, but they are commonly of hard wood. Some drums are of brass.

Kettle Drums, are composed of two large basons of copper or brass, rounded in the bottom, and covered with vellum or goat's skin, which is kept fast by a circle of iron, and several holes, fastened to the body of the drum, and a like number of screws to screw up and down. They are much used among the horse.

Drum, or Drummer. The man that beats the drum, which is done after several manners, either to give notice to the troops what they are to do, or to demand liberty to make some proposals to an enemy. Every regiment of foot has a drum major, who command all the rest, and every company has two, three, or four drums, as the men are in number. To *beat the general*, is to give notice to the forces that they are to march. To *beat the assembly* or *troop*, is to order the men to repair to their colours. To *beat the march*, is to command them to move. To *beat the tat-too*, is to order all to retire to their quarters. To *beat the reveille*, at break of day, is to warn the soldiers to rise, and the centinels to forbear challenging, and to give
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leave to come out of quarters. To *beat the charge*, is a signal to fall upon the enemy. To *beat a retreat*, is a signal to draw off from the enemy. To *beat to arms*, is for soldiers that are dispersed to repair to them. To *beat a call*, is to advertise the soldiers to stand to their arms. To *beat an alarm*, is to give notice of sudden danger, that all may be in readiness. To *beat a parley*, or *chamade*, is a signal to demand some conference with the enemy. When a battalion is drawn up, the drums are on the flanks; and when it marches by divisions, or subdivisions, they march between them.

Dry Moat. See *Moat*.

Duledge. A peg of wood which joins the ends of the six fellows that form the round of the wheel of a gun-carriage. The plate of iron on the outside of the wheel, which strengthens the joint, is called the *duledge-plate*.

Dungeon, or *Donjon.* See *Donjon*.

Duty. The exercise of those functions that belong to a soldier; yet with this nice distinction however, that *duty* is counted the mounting guard, and the like, where there is not an enemy directly to be engaged; for when they march to meet the enemy, it is called *going upon service*.

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EARTH Bags. Vide *Canvas Bags*.

Echarpe. To batter *en Echarpe*, is to batter obliquely or sideways Vide *Battery*.

Echaguette. Vide *Gueritte*.

Elder Battalion, or *Officer.* A battalion is counted elder than another by the time since it was raised. See more of this under the word *Seniority*.

Elevation, angle of. That comprehended between the horizon and the line of direction of a cannon or mortar; or it is that which the chase of a piece, or the axis of its hollow cylinder, makes with the plane of the horizon.

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Embrazures. The gaps, cuts, or loop-holes, left open in a parapet for the cannon to fire through. The usual distance between the Embrazures is generally 12 feet, for the conveniency of the gunner, and that the parapet may not be too much weakened. Every Embrazure is three feet above the platform next to the cannon, and a foot and a half next the campaign, to sink the muzzle, and play low. Each of them is about three feet wide within, and about six or seven without, for the conveniency of traversing the guns. See *Battery*.

Eminence, or Height. A rising ground that overlooks, and commands the low places about it. Such places within cannon shot of a fort, are a great advantage; for if the besiegers become masters of them, they can, from thence, fire into the fort.

Empattement. The same as *Talus*, which see.

Encampment. The pitching of a camp. See *Camp*.

Enceinte. The wall or rampart which surrounds a place; sometimes composed of bastions and curtains, either faced with brick or stone, or only made of earth; sometimes only flanked by round or square towers, which is called a *Roman wall*.

Enfans perdus. Men detached from several regiments, or otherwise appointed to give the first onset in battle, or an attack upon the counterescarp, or the breach of a place besieged; so called because of the imminent danger they are exposed to. In England they are commonly called, *the Forlorn Hope*.

Enfilade. The situation of a post, which can discover and scour all the length of a strait line, which, by that means is rendered almost defenceless.

To Enfile, or Enfilade the curtain or rampart. To sweep the whole length of it with the shot. In conducting the approaches of a siege, care must be taken that they be not enfilade from the works of the place; but that they be carried on with windings and turnings up to the glacis, and then strait forwards, being sunk deep in the ground, and covered over head.

Engineer. An able expert man, who, by a perfect knowledge in mathematicks, delineates upon paper, or marks upon the ground, all sorts of forts, and other works proper for

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for offence and defence. He should thoroughly understand the mathematics and fortification, so as to discover the defects of a place, and to find a remedy proper for them; and also how to make an attack upon, as well as to defend, the place. Engineers are extremely necessary. It is requisite that they should be brave as well as ingenious. When engaged at a siege, it is their duty to survey very narrowly the place, and make their report to the general, what part they judge the weakest, and where approaches may be made with the most success. Their business is also to delineate the lines of circumvallation and contravallation, taking all the advantages of the ground; to mark out the trenches, places of arms, batteries and lodgements; taking care that none of their works be flanked or discovered from the place. After making a faithful report to the general of what is doing, it is the Engineers duty to require a sufficient number of workmen and utensils, and whatever else is necessary.

Enneagon. A figure that has nine sides, and as many angles, capable of being fortified with the same number of battions.

Ensign. The officer that carries the colours among the foot, and is the lowest commission officer in the company, being subordinate to the captain and lieutenant. It is a very honourable and proper post for a young gentleman, at his first coming into the army. He has the charge of the Ensign in battle, and is to die rather than lose his colours. If he be killed, the captain is to take them in his stead.

Envelope. A work of earth raised sometimes in the ditch of a place, sometimes like a plain parapet, and sometimes like a small rampart with a parapet to it. *Envelopes* are generally made, when weak places are covered only with bare lines, and either they cannot, or will not stretch out towards the campaign with half moons, horn-works, tenailles, or the like works which require much ground. The *Envelopes* in a ditch are sometimes called *Silons*, *Contre*, *Gardes*, *Conservees*, or *Lunettes*. See *Silon*, *Contre*, *Garde*, *Lunettes*.

Epaule, the shoulder of a bastion. The space contained by the angle, made by the union of the face and flank;

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whence that angle is called, *the Angle of the Epaule, or Shoulder.*

Epaulment. A work to cover aside, or side-ways, made either of earth thrown up, of bags of earth, of gabions, or of fascines and earth. The Epaulements of the places of arms for the cavalry, behind the trenches, are generally only of fascines and earth.

Epaulment, is also taken for a *Demi Bastion.* Vide *Bastion.*

Epaulment, or Square Orillon. A mass of earth almost square, and faced or lined with a wall, to cover the canon of a *Cazematte.* Vide *Orillon.*

Eptagon. See *Heptagon.*

Equilateral. A figure that has all its sides equal.

Escalade. Vide *Scalade.*

Escarp. Vide *Scarp.*

Escort. The same as *Convoy.*

Escouade. Generally is the third part of a company of foot, so divided for mounting of guards, and relieving one another: equivalent to a brigade of horse.

Espaule and Espaulement. The same as *Epaule* and *Epaulement.*

Esplanade. It properly signifies the sloping of the parapet of the covert way towards the campaign, and is therefore the same as the glacis of the counterscarp; but begins to be antiquated in that sense, and is now only taken for the empty space between the glacis of a citadel, and the first houses of a town, commonly called the place of arms.

Essoile. Vide *Star Redoubt.*

Etappe. An allowance of provisions and forage, for soldiers in their march through a kingdom, to or from winter quarters.

Etappier. One that contracts with a country, or territory, for furnishing troops in their march with provisions, and forage. The *Etappiers* are to deliver the *Etappe* to the majors of horse, or foot, and in their absence to the quarter-masters of each troop of horse, or serjeants of the company of foot. They are forbid giving soldiers their *Etappe* in money. Sometimes the *Etappiers* and officers compound for a sum of money, and oblige the soldiers to make

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make two days march into one ; which is great harrassing of men and horses, and a notorious fraud.

Evolutions. The motions made by a body of men in changing their posture, or form of drawing up, to make good the ground or post they are on, or possess themselves of another, that they may either attack the enemy, or receive his onset more advantageously. The *Evolutions* are *doubling of ranks or files, counter marches, and wheelings.*—A battalion doubles the ranks when attacked in front and rear, to prevent its being flanked or surrounded ; for then a battalion fights with a longer front : the files are doubled either to accommodate themselves to the necessity of a narrow ground, or to resist an enemy which attacks them in flank ; but if the ground will allow it, conversion is much preferable, because after conversion the battalion is in its first form, and opposes the file leaders, which are generally the best men to the enemy ; and likewise, because doubling the files in a new, or not well disciplined regiment, they may happen to fall into disorder. See *Doubling*.

Execution Military. The pillaging or plundering a country by an enemy's army.

Exagon. See *Hexagon*.

Exercise. The practice of all those motions and actions, and the whole management of arms a soldier is to be perfect in, to be fit for service, and make him understand how to attack and defend. The exercise of a soldier in camp, considered as conducive to health, Dr. Pringle distinguishes into three heads ; the first relating to his duty ; the second to his living more commodiously ; and the third to his diversions. The first consisting chiefly in the exercise of his arms, will be no less the means of preserving health, than of making him expert in his duty, and frequent returns of this, early, and before the sun grows hot, will be made more advantageous than repeating it seldom, and staying out long at a time ; for a camp affording little convenience for refreshment, all unnecessary fatigue is to be avoided. As to the second article, cutting boughs of trees for shading the tents, making trenches round them for carrying off the water, airing the straw, cleaning their clothes and accoutrements, and assisting in the business of the mess, ought to be no disagreeable exercise to the men for some
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part of the day. Lastly, as to diversions, the men must be encouraged to them either by example or small premiums to those who shall excell in any kind of sports, as shall be judged most conduive to health, but in this great caution is necessary, by not allowing them to fatigue themselves too much, especially in hot weather, or sickly times; but above all it is essentially necessary that their cloathes be kept dry, wet cloathes being the most frequent causes of camp diseases.

External Angles, are the angles on the out side of any right-lined figure, when all the sides are severally produced, and they are all, taken together, equal to four right angles.

Explosion. See *Gun powder*.

F

F*ACE of a Bastion*. The two foremost sides, reaching from the flanks to the point of the bastion where they meet, are called the *Faces*. These are commonly the first undermined, because they reach furthest out, and are least flanked, and therefore weakest. But even before this can be done, the opposite flank, which defends the passage of the moat, should be ruined.

Face of a Place, called also the *Tenaille of the Place*. The interval between the points of two neighbouring bastions, containing the curtain, the two flanks, and the two faces of the bastions that look upon one another. In a siege, when the whole *Tenaille* is attacked, the approaches are carried on against both bastions.

Face prolonged, or *extended*. Is that part of the line of defence razant, which is terminated by the curtain, and the angle of the shoulder; that is, it is the line of defence razant, diminished by the face of the bastions.

Face of a Gun, is the superficies of the metal at the extremity of the muzzle of the piece.

Face is a word that respects also the motions of troops. To face, is to look towards such a side or to turn to it; as

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Face to the right, or to the left, is, to turn the face and whole body one quarter that way, upon the opposite heel.

Faggots. The French call them *Passevolans*. They are men hired to muster, by officers whose companies are not full, to cheat the sovereign of so many men's pay. The late king of France ordered, that any who should be found so to pass in musters, if discovered, should have a *flower de luce* burnt upon their cheek, and lose their arms and equipage. *Faggots* are also the same as *Fascines*.

False Attack. Vide *Attack*.

Falcon. Vide *Faucon*.

Falconet. Vide *Fauconet*.

False Alarm. Vide *Alarm*.

Fanion. A banner carried by a servant belonging to each brigade of horse and foot, at the head of the baggage of each brigade, to keep good order, and prevent confusion in the march. It is made of stuff of the colour of the brigadiers, or the commanding officers livery. It is a corruption of *Gonfannon*, which in Italian signifies a banner.

Fascines, are faggots of small wood, which distinguishes them from the *Saucissons*, made of bigger branches of trees. *Fascines* are greater or less, according to the several uses they are put to. Those that are to be pitched, to burn a lodgment, gallery, or other work of the enemies, are but a foot and a half long, and a foot thick; but those that are for making *Epaulments*, or *Chandeliers*, or to raise works, or to fill up wet ditches, must be between two and three feet in thickness, and four feet long; and being to be loaded with much earth to make them more solid, and prevent their being fired, they are bound at both ends, as well as in the middle. The enemy has no way to destroy them but by fire; to prevent which, they are either loaded with earth, or covered with raw hides.

A Faucon, or Falcon. A very small cannon 2 inches and 6 eighths diameter in the bore, 7 feet long, weighing 750lb. takes a charge of 2 pounds 4 ounces of powder, and carries a ball 2 inches and 5 eighths diameter, and 2 pounds 8 ounces weight. Its point-blank shot is 100 paces.

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A Fauconet, or Falconet. A very small piece of cannon, 2 inches and 2 eighths diameter in the bore, 6 feet long, weighing 400 weight, takes a charge of 1 pound 4 ounces of powder, and carries a bullet 2 inches and 1 eighth diameter, and 1 pound 5 ounces weight. Its point blank shot 90 paces. These pieces are now pretty much out of use, being found too small to be of considerable advantage in an army, where the three pounders, minions, and fakers, are generally the smallest now to be met with.

Fausse Braye, Chemin des Rondes, Basse Enceinte, or Lower Enclosure, or Counter-breast-work. This is a space about the breadth of two or three fathom round the foot of the rampart, on the outside, defended by a parapet, with a banquet, which parts it from the *Berme*, or *Foreland*, and the edge of the ditch. The design of the *Fausse Braye*, is to defend the moat: but they are useless where ramparts are faced or lined with wall, because of the rubbish the cannon beats down into them. Therefore most engineers will have none before the faces of the bastion, where the breach is commonly made, because the ruins falling, the *Fausse Braye* makes the ascent to the breach the easier, and what flies from the faces, kills the soldiers that are to defend them. Traverses, fillons, or coffers, are much better works for the same purpose of defending the dry moat, but in places surrounded with a wet ditch, a fausse-braye is more useful, provided it be made only before the curtain and flanks; for lying low, it cannot be easily hurt by the enemy's cannon, and it defends the fosse better, because of its low situation, than the true rampart, which, on account of its height, cannot so well discover the fosse.

Fellows, are six pieces of wood, each whereof forms a piece of an arch of 60 degrees, and joined all together, by dyledges, make an entire circle; which with the addition of a nave, and twelve spokes, make the wheel of a gun-carriage. Their thickness usually is the diameter of the ball of the gun they serve for, and their breadth something more.

Fichant. Vide *Line of Defence Fichant*.

Ferdwit. A term formerly used to denote a freedom from going forth upon any military expedition; or according to some,

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some, the being quit of man-slaughter committed in the army.

Field, denotes the place where a battle was fought.

Field-fort. See *Fort*.

Field-works, are those thrown up by an army in besieging a fortress, or by the besieged to defend a place. Such are the fortifications of camps, highways, &c.

Running Fight, that in which the enemy are continually chased.

Figure. The plan of any fortified place, or the interior polygon, which, when the sides and angles are equal, is called a *regular*, and when unequal, an *irregular Figure*.

Field Officers. See *Officers*.

Field Pieces. Small guns, proper to be carried along with an army into the field; such as 3 pounders, minions, sakers, 6 pounders, demiculverins, and 12 pounders; which, because of their smallness, are easier drawn, easier served, require lesser quantities of ammunition, and are, upon the whole, of less charge.

Field Staff. A weapon carried by the gunners, about the length of a halbert, with a spear at the end, having on each side ears screwed on, like the cock of a matchlock, where the gunners screw in lighted matches when they are upon command: and then the *Field Staffs* are said to be alarmed.

Field Marshal. A rank not of long standing in England, but superior to all others in the military way. There never have been above two or three Field Marshals in England at once; but the marshals of France are commonly pretty numerous.

File. The strait line soldiers make, that stand one before another, which is the depth of the battalion, or squadron, and thus distinguished from the rank where the men stand side by side, and make the length of the battalion or squadron. Among the foot, the files are generally six deep; among the horse but three. The files must be strait, and parallel to one another. To *double the Files*, is to put two files into one, which makes the depth of the battalion double what it was; not in the space of ground, but in number of men; and also doubles the intervals between the files, making the ranks look thin

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thin. The men in a file are distinguished by the several names of file leaders, half file leaders, and bringers up. If a battalion be drawn up eight deep, there may be quarter files; but this is not usual.

File Leaders. The men that compose the front, or first rank of a battalion, being the first of every file.

To file off. The same as to *d. file*, to fall off from marching in a spacious front, and march by length in files. When a regiment is marching in full front, and comes to a narrow pass, it may march off by divisions, or subdivisions, or file off from the right or left, or as the ground requires.

Fire. To fire: to discharge fire arms.

Fire Arms. Under this name are comprehended all sorts of arms, that are charged with powder and ball, as cannon, muskets, carabines, pistols, blunderbusses, &c.

Running Fire. When men drawn up for that purpose fire one after another, so that it runs the whole length of the line, or round a town, or the like, which is used upon public occasions of rejoicing.

Fire Ball. Is made of ground or meal powder, saltpetre, brimston, camphire and borax, all sprinkled with oil, and moulded into a mass, with mutton suet and pitch, and made as big as an ordinary grenade. This is wrapped up in tow, with a sheet of strong paper over it. To fire it, they make a hole into it with a bodkin, into which they put a fusee of a composition that will burn slow. This they cast into any works of an enemy, when they would discover them in the night time. They are also used to fire houses or galleries; but are then armed with iron spikes or hooks, that they may hold fast where they fall.

Fire Master. An officer that makes the fusees for bombs and granadoes, and other fireworks. He also gives the directions, and proportions the ingredients for all compositions in fireworks.

Firelock. The arms carried by a foot soldier, 3 feet 8 inches in the barrel, the stock 4 feet 8 inches. It carries a leaden bullet of an ounce weight.

Fire Pots. Small earthen pots, into which is put a grenade filled with powder, and then the pot is filled with fine powder till the grenade is covered: the pot is afterwards covered

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covered with a piece of parchment, and two matches lighted across. This pot being thrown by a handle of match where it is designed, it breaks and fires the powder, and burns all that is near it, and likewise fires the powder in the granade, which ought to have no fusee, to the end its operation may be quicker.

Fire-workers. Officers subordinate to the fire-master, but who command the bombardiers. They receive their orders from the fire-master, and not only see them executed, but work themselves along with the bombardiers. There are twenty-four fire-workers established in the office of ordnance.

Flag. A small banner of distinction stuck in the baggage-waggons of the army, to distinguish the baggage of one brigade, or battalion, from another, that they may be marshalled by the waggon master-general, according to the rank of their brigades, where they are to keep during the march, to avoid confusion.

Flank of an army, are the troops encamped on the right and left, as the flanks of a battalion are the files on the right and left.

Flank of a Bastion. That part of the bastion which reaches from the curtain to the face, comprehended betwixt the angle of the curtain and the angle of the shoulder, and is the principal defence of a place: its use is to defend the curtain, the flank, and face of the opposite bastion; to defend the passage of the moat; batter the saillant angles of the counterscarp and glacis, from whence the besieged generally ruin the flanks with their artillery; for the flanks are the parts of a fortification, which the besiegers endeavour most to ruin, in order to take away the defence of the face of the opposite bastion.

Engineers differ very much about raising the flank, some making it perpendicular to the face, some to the curtain, and others to the line of defence; some again make it an angle of 90° with the curtain, whereas Vauban makes it the chord of a segment, whose center is the angle of the shoulder of the next bastion.

Flank Oblique, or Second Flank. That part of the curtain that can see to scour the face of the opposite bastion, and is the distance between the lines *Rasant* and *Fichant*. This
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appears in a plan upon paper to be a good defence, but is rejected by most engineers, being liable to be ruined at the beginning of a siege, especially if it be of a sandy earth. The second parapet, which may be raised behind the former, is of no use; for it neither discovers nor defends the face of the opposite bastion: besides, it shortens the flank, which is the true defence, and the continual fire of the besiegers cannon will never suffer them to raise a second parapet. This second flank defends very obliquely the opposite face, and is to be used only in a place which is to be attacked by an army without cannon.

Flank retired, low, or covered flank, flank retire. The platform of the *cazemate*, which lies hid in the bastion. This is generally called the *cazemate*, when there is only one platform retired towards the capital of the bastion, and covered by an orillon. These retired flanks are a great defence to the opposite bastion, and to the passage of the moat, because the besiegers cannot see, nor easily dismount their guns. This curtain is generally esteemed the strongest part of a fortification, because flanked at both ends; and the face is accounted the weakest, as having only one defence from the opposite flank.

Flank prolonged, or extended. Is the stretching out of the flank from the angle of the *epaule* to the exterior side, when the angle of the flank is a right angle.

To Flank. To discover and fire upon the side or flank of an enemy. Any fortification which has no defence but right forwards, is faulty, and to make it compleat, one part ought to flank the other. The curtain is always the strongest part of any fortified place, because it is flanked by the two flanks at the ends of it; and the face, having but one defence from the opposite flank, is counted the weakest.

Flanked Angle. The angle formed by the two faces of the bastion; the point of the bastion. See *Angle*.

Flanked Angle, or Angle of the Tenaille, that composed of the two lines of defence, and pointing towards the curtain. See *Tenaille*.

Flanking Line of Defence. See *Line of Defence*.

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Flask. A thing generally made of horn, to carry powder in, with the measure of the charge of the piece on the top of it.

Flying Army, or Flying Camp. See *Camp*.

Flying Bridge. See *Bridge*.

Foot. So absolutely taken, signifies all those bodies of men that serve on foot. They are armed with a sword, bayonet, firelock, or cartridge box, &c. The foot are formed into companies, and according to the articles of war, a soldier is not to leave his company, without leave from his officer, or to go about his own business, without being reputed a deserter, and tried for his life. These companies are formed into regiments.

Foot. Is a known measure divided into 12 inches, being the sixth part of a fathom, the 5th of a geometrical pace, and used in fortification.

'To be on the *same Foot* with another,' is to be under the same circumstances in point of service; to have the same number of men, and the same pay.

'To gain or lose ground, *foot by foot*, it is to do, regularly and resolutely, defending every thing to the utmost, or forcing it by dint of art or labour.

Footbank, Footstep, or Banquette. A small step of earth under the parapet, to raise the men to fire over it, about a foot and a half high, and three feet wide. They usually make two or three of them under the parapets of little forts and redoubts. The parapet should be always four feet and a half above the highest footbank. Their use is for the musqueteers to get up on, in order to discover the counter-scarp, or to fire on the enemy in the mole, or in the covered-way.

Foot Guards. See *Guards*.

Foot Soldiers. See *Infantry*.

Forrage. Hay, straw, and oats, for the subsistence of horses. A ration of forage is a day's allowance for a horse, which is 20lb. of hay, 10lb. of straw, and, for want of straw, 25lb. of hay.

Dry Forrage is the hay, oats, &c. delivered out of the magazines to an army in garrison, or when they take the field,

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field, before the green forrage is sufficiently grown up to supply the troops.

It is the business of the quarter-master-general to appoint the method of forrage, and post proper guards for the security of the forragers. He ought also, in encamping an army, to take care that it be in a country abounding with forrage.

Foreland, Barm, Berm, or Lizier; Relais, Retraite, and Pas de Souris. A small space of ground between the rampart of a place, and the moat, which the best fortifications have not, because it is advantageous for the enemy to come over the moat, and get footing; and therefore this is only left, where there is not enough to defray the expence of stone to face the foot of the rampart, in place whereof this helps to support it, and is generally from 3 to 8, or 10 feet wide. This space is left to receive what the enemy batters down from the parapet, that it may not fill the ditch. For the more security this *Foreland* is generally pallisadoed, and in Holland they plant it with quick-sets.

The Forlorn Hope. Vide *Enfans perdus*.

Forge. An engine carried along with the artillery for the smiths, and is a travelling smith's forge. The *Forge* for hot balls, is the place where the balls are made hot before they are fired off: it is built of brick, and hath a furnace below, over which are bars of iron: it is covered over head, and the balls laid upon the bars till they be hot, and are taken out with long ladles, to be put into the gun. The materials for such forges are carried along with the artillery, when there is any design of burning magazines, or the like with hot ball.

Formers, are of several sorts; but the chief is for making cartridges for cannon. They are round pieces of wood fitted to the diameter of the bore of a gun, on which the paper, parchment, or cotton, which is to make the cartridge, is rolled before it be sewed.

Forming of a siege. See *Siege*.

Fort, is a work environed on both sides with a moat, rampart, and parapet: the design of it is to secure some high ground, or the passage of a river, to make good an advantageous post, to fortify the lines and quarters of a siege, &c. They are of different figures, and are made small-

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smaller and greater, as the ground requires. Some are in the shape of bastions; some are fortified with entire bastions, others with demi bastions; some are raised on a square, and others on a pentagon. A fort differs from a citadel, because this last is always raised by the orders of the sovereign. Small forts are made in form of a star, having five or seven angles, and are raised for the security of the lines of circumvallation.

Royal Fort, one whose line of defence is at least 26 fathoms long.

Star Fort. A redoubt formed by a number of re-entering and salient angles, the sides of which flank each other.

Fortification. The art of fortifying a place, so that every part may discover the enemy in front and flank, and oppose the depth of the ditch, and the height and thickness of the rampart against him; that so a small body of men within that enclosure may advantageously oppose a great army. This same word is also used to signify all the works that cover or defend a strong place. It is also the art by which an engineer makes plans and designs, raises different sorts of works, digs the foss, faces the ramparts, and conducts the approaches, either in the attack or defence of a place: in short, it requires an engineer to be a good designer, architect, miner, and mechanic, and to understand gunnery. See *Introduction*.

Fortification is usually divided into natural, artificial, ancient, modern, regular, irregular, offensive, and defensive. Some have made several orders of fortification, in imitation of architecture; the one they call the French order, the other the Dutch, the third the Italian, &c.

Fortification Offensive, teaches a general how to take all advantages for his troops; also the manner of encamping, and of besieging and taking of towns.

Fortification Defensive, shews a governor how to make the best of the garrison committed to his care, and to provide all things necessary for its defence.

Natural Fortifications, consists in the natural difficulty of access to any place, caused by waters, morasses, craggy or steep ascents, or the like, and teaches an engineer how to make the most of them.

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Artificial Fortification, is what an engineer thinks fit to add in work, as ramparts, trenches, bastions, ravelins, half moons, &c. to supply the defects of nature, and secure a place against an enemy.

Ancient Fortification, consists only in places surrounded with walls, and towers on them at certain distances.

Modern Fortification, is that which is flanked and defended by bastions and outworks, and whose works are so solid, that they are proof against the force of cannon, and cannot be beat down, but by a perpetual fire from several batteries of cannon.

Fortification Regular, consists in the place's being fortified according to the rules; the sides of the polygon not exceeding a musket shot, and the angles being equal; in its being defended by bastions and other works, whose relative parts are equal and uniform.

Irregular Fortification is, when a town has such an irregular situation, as renders it incapable of being regularly fortified, both because of the difference of its sides, some being too long, others too short; as likewise because of its being surrounded with precipices, vallies, ditches, rivers, hills, rocks, or mountains, and must therefore be fortified with works suitable to the situation.

To fortify inwards, is to represent the bastion within the polygon proposed to be fortified; and then that polygon is called the *exterior polygon*, and each of its sides the *exterior side* terminating at the points of the two nearest bastions.

To fortify outwards, is to represent the bastion without the polygon proposed to be fortified; and then that polygon is called the *interior polygon*, and each of its sides the *interior side*, terminating in the centers of the two nearest bastions.

Fortified. An appellation given to places defended by ramparts, bastions, ditches, covert-ways, half moons, ravelins, tenailles, and other out-works.

Fortin. A small fort made like a star, of five or more points, to strengthen a line of circumvallation, or the like.

The flanked angles of a fortin, or field-fort are generally distant one from another 120 fathoms. The extent of
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fortins are different, according to the situation or nature of the ground; some of them having whole bastions, and others demi-bastions. They are made use of only for a time, either to defend the lines of circumvallation, or to guard some passage or dangerous post.

Fosse. A hollow place, commonly full of water lying between the scarp and the counterscarp, below the rampart; and turning round a fortified place on a post that is to be defended. See *Moat*.

Foucade, Fougado, or Fougasse. A small *Fourneau*, or mine made like a well, eight or ten feet wide, and ten or twelve in depth, charged with barrels or bags of powder, and prepared under a post that is like to be lost. It is covered with wood and earth, and fire put to it by a sauciss train conveyed in a pipe to another post. Military persons say, 'We could not keep our footing on the half moon we had gained, because the enemy played two *Foucades*, which ruined the lodgment we had made upon the gorge.'

Fourneau. The chamber of a mine, being a hollow made under some work that is to be blown up. The top of it is sometimes made like a priest's cap, that is, with four or five hollows, or chimneys in it, that the powder may find the more passages, and have the effects different ways. Sometimes this chamber is 5 or 6 feet every way, being exactly square, which is most usual. About 1000 weight of powder, either in bags or barrels, is the common charge of one of these chambers: but it is at the discretion of the engineer to add or diminish this proportion, according to the bulk or nature of the soil he is to blow up, whether loose earth, or rock. For sometimes they make four or five chambers under one work, each of which has not above 100 weight of powder. A *Fourneau* ought not to be charged till it is ready to spring, because the powder lying too long in the humidity of the earth, loses its force. When the powder is put in barrels, one of the staves must be taken out, and a quantity of powder scattered round; if it be in sacks they must be ripped, and powder strowed about, that they may fire all at once. The mouth of the *Fourneau* is to be stopped with great stinks, and pieces of wood, and the vacancy which is

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left, after the *Fourneau* is charged, must be filled with stones and pieces of wood, and all the turnings well stopped.

Fourneau superficial. Vide *Caisson*.

Fraises. Stakes about six or seven feet long, whereof about one-third part is drove into the wall of a fortified place, a little below the cordon of the wall. In such places as are not faced or lined with wall, they are planted on the outside of the rampart, about the foot of the parapet. They are always stuck in sloping a little, that is, not quite parallel to the level of the plain, but the points hanging downwards, that men may not stand upon them. They serve to prevent scalades and desertion.

To Fraise a Battalion. Is so to line it every way with pikes, or bayonets, that it may stand the shock of a body of horse, and serve as a barricade.

Front of a Battalion, is the first rank, or the file leaders; it is likewise called the *face* or *head* of a battalion. *Front* of a squadron is the first rank of troopers. *Front* of an army is the first row of tents in the first line, which are the quarter-masters tents in the horse, and the serjeants in the foot.

Front of a place, is the same as the *face of a place*, or the *tenaille*, being all that is contained between the *flanks* or *angles* of two neighbouring *bastions*, viz. the two *faces* and the two *flanks*, and the *curtin*.

To front every way, is when the men are faced to all sides.

Furlough. A licence granted by an officer to a soldier to be absent for a time from his duty. All soldiers found half a league from a garrison, or army, going to an enemy's country, or quarter, without a pass, are deemed, and treated as deserters.

Fusée, or Firelock. See *Musket*.

A Fuze, Fusée. A pipe full of wildfire put into the touch hole of a bomb, granado, or the like, to fire it. See *Bomb*.

Fuziliers. Foot soldiers armed with firelocks, who are generally slung. There is a regiment of Welsh Fuziliers, and another of Scotch, in the English service.

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GABIONS, or *Cannon Baskets*. Great baskets 5 or 6 feet high, and about 4 feet diameter, as well at the bottom as the top. They are filled with earth to make a cover or parapet against the enemy, and are sometimes used in making batteries. They are commonly used on batteries, to screen the engineers, &c. in order to which, one is placed on either side of each gun, a vacancy being left for the muzzle to pass through; but they are never so good as a battery raised of earth or fascines, because, if there be a counter battery to play upon them, they are easily ruined. Sometimes they are used in making lodgments on a post, and sometimes in making the parapet of the approaches, especially when the attack is carrying on through a rocky ground. When the approaches are got near the covert way, the besieged endeavour to set the gabions on fire by small *fascines*, or bavons pitched over, which they throw upon them.

Gallery, or passage made cross a moat, or ditch of a town, is a walk of strong beams, covered overhead with planks, and loaded with earth. 'Twas formerly used for putting the miner to the foot of the rampart. Sometimes the gallery is covered over with raw hides, to defend it from the artificial fire of the besieged. Its sides should be musket proof. It ought to be 8 feet high, and 10 or 12 wide: the beams ought to be half a foot thick, and 2 or 3 feet asunder; the planks or boards nailed on each side, and filled with earth or planks in the middle; the covering to rise with a ridge, that what is thrown upon it by the besiegers to burn it, may roll off. They are chiefly used to secure and facilitate the miners approach to the face of the bastion over the moat, which is already supposed to be filled up with faggots and bavons, and the artillery of the opposite flank dismounted.

Gallery of a Mine, is the same as *Branch of a Mine*, that is, a passage under ground of 3 or 4 feet wide under the works, where a mine or countermine is carried on. The besieged and besiegers carry each of these branches

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under ground, in search of each others mines, which often meet and destroy one another, or at least disappoint the effect of the mine. See *Mine*.

Gantlet, or *Gauntlet*, a large kind of glove, made of iron, and the fingers covered with small plates; formerly worn by cavaliers, when armed at all points.

Garrison. A body of forces disposed in a fortress, to defend it against an enemy, or keep the inhabitants in subjection; or even to be subsisted during the winter season; hence garrison and winter quarters are sometimes used indifferently for the same thing; and sometimes different things. See *Winter Quarters*.

Garrison Town, is a strong place, in which troops are quartered, and do duty for the security of the town, keeping guards at each port, and a main guard in the market place. The troops that are put into a town either for their security or subsistence, in the winter-time or are there in the summer for the defence of the place are called the *Garrison of that town*.

Gate. Made of strong planks with iron bars to oppose an enemy. The gate of a strong hold ought to be in the middle of a curtain, that it may be well defended by both flanks. Those which are in the flank, weaken the most necessary part of the fortification; and when they are in the face, they are still more prejudicial to the bastion which ought to be clear, to make retrenchments upon occasion. At the opening of the gates, a party of horse is sent to patrol in the country round the place, to discover ambuscades or lurking parties of the enemy, and to see if the country be clear. In some garrisons the guard mounts at the opening of the gate, so that in case of a surprize, both the old and new guards being under arms, they are in a condition of making a good defence. The word nor orders ought never to be given till after the gates are shut, for fear of spies lurking in the town that may carry intelligence to the enemy.

Gazons. Sods of turfs about a foot long, and half foot broad, cut in form of a wedge, to face the parapet. They are made so, that their solidity forms a triangle, that being mixed with the rest of the earth of the rampart.

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part, they may easily incorporate in a mass. The first bed of gazons is fixed with pegs of wood; the second bed ought to be laid to bind the former, that is over the joints of it, and so continued till the ramparts are finished. Betwixt these beds they generally sow all sorts of binding herbs, to strengthen the rampart. Traverses made to pass a ditch are often covered with gazons, laid on planks to save them from fire.

Gendarmes, or Men at Arms. Horsemen who formerly fought in compleat armour; now a select body of horse in France, being in all nine independent troops, not regimented. These troops are commanded by captain-lieutenants, the king and princes of the blood being their captains; the king's troop, besides a captain-lieutenant, has two sub-lieutenants, three ensigns, and three guidons. The other troops, which are those of the Scotch *Gendarmes*, the queen's, the dauphin's, the *Gendarmes* of Anjou, Burgundy, the English and Flemish *Gendarmes*, and those of the duke of Orleans, are called the *Small Gendarmery*, and have each a captain-lieutenant, a sub-lieutenant, ensign, guidon, and quarter-master. They carry a standard longer than the light horse, and divided into two points a little rounded, generally adorned with some little device or cypher in embroidery, and a fringe. Each troop has a pair of kettle drums, and two trumpets. The troops of life guards, those of the musquetaires, and those of the light horse of the queen, dauphin, and duke of Orleans, are reckoned as *Gendarmes*, and take place as such.

General of an Army. He that commands it in chief; who, to be fit for so great an employ, ought to be a man of great courage and conduct, to have great experience, and to be of good family. His conduct appears in establishing his magazines in convenient places; in examining the country, that he may not engage his troops too far, while he is ignorant of the means of bringing them off; in subsisting them; and in knowing how to take the most advantageous posts, either for fighting or shunning a battle. His experience inspires his army with confidence, and an assurance of victory; and his

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quality, by creating respect, augments his authority. By his liberality he gets intelligence of the strength and designs of the enemy, and by this means is enabled to take the most successful measures. A general ought likewise to be fond of glory, to have an aversion to flattery, to render himself beloved, and to keep a strict discipline. The office of a general is to regulate the march of the army, and their encampment, to visit the posts, to command parties for intelligence, to give out the orders and the word every night to the lieutenant and major generals; in day of battle, he chuses the most advantageous ground, makes the disposition of his army, posts the artillery, and sends his orders by his aid de camps, where there is occasion. At a siege, he causes the place to be invested; he views and observes it, orders the making of the lines of circumvallation and contravallation, and making the attacks: he visits often the works, and makes detachments to secure his convoys. There are also lieutenant generals, brigadier generals, commissary generals, and quarter-master generals, of which we shall speak under their particular letters.

General of Horse, and *General of Foot*, are posts next under the general of the army. They have an absolute command over all the horse or foot of an army, upon all occasions, above the lieutenant generals.

General of the Artillery, or *Master General of the Ordnance*, is one of the greatest employs in the kingdom, being a charge of extensive trust. It is generally bellowed on one of the first peers in the kingdom: he has the management of all the ordnance of the state, and ought to know and consider whatever can be serviceable or useful in the artillery, and to distribute the vacancies to such as are qualified for them. He has for his assistants in that employ, a lieutenant general, who commands in the absence of the general; a surveyor general, clerk, store keeper, and clerk of deliveries, who are called the principal officers of the ordnance.

General. The beat of drum so called, is the first which gives notice, commonly in the morning early, for the foot to be in readiness to march.

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General Officers. Vide Officer.

Gin, or Crab. An engine for lifting or raising of great guns upon, or off their carriages.

To give ground. To retire, to lose the post a body of men is in.

Glacis. This word in general signifies a very easy little slope, which distinguishes it from the talus. For in the glacis the height is always less than the base of the slope; but in the talus the height is equal to, or more than the base of the slope. The name of glacis is particularly applied to the slope of the parapet of the covert way, which falls off even with the level of the field. This glacis is also called *Esplanade*; but that word in this sense grows out of date. The soldiers corruptly call the top of the glacis the counterscarp. When the approaches are brought to the foot of the glacis, they are so near, that they cannot turn any way, but they must be enfiladed; therefore they are carried straight forwards by sap, unless it be resolved to attempt the covert-way by assault.

Gorge. The entrance that leads into the body of a work. In all the out-works, the gorge is the interval betwixt the wings on the side of the great ditch, as the gorge of the ravelin, half-moon, &c. All gorges must be plain, without any parapet, lest when the besiegers have possessed themselves of the work, that parapet should cover them from the fire of the place; but the gorges are palisadoed to prevent surprize; and during the siege they generally make little mines, coffer, and fourneaux under them, to blow up the enemy before they can lodge themselves. The several gorges are distinguished as follows:

Gorge of a Bastion, is that space which is taken equally on each side of the angle of the figure on the sides of the interior Polygon, which makes the entry into the bastion from the town or place, one half of which is called the demi-gorge.

Gorge of a flat Bastion, is a right line, which terminates the distance between two flanks.

Gorge of a Half Moon, is a distance between the two flanks, taken on the angle of the counterscarp.

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Gorge of a Ravelin, is the distance between the two sides or faces towards the place.

The Gorges of all other out-works, are the entry into them from the place, the distance between their sides.

Governor of a Garrison. A considerable officer, representing the king's person, whose authority extends not only over the inhabitants and garrison, but over all troops that may be there in winter quarters, or quarters of refreshment. His charge is to order the guards, the rounds, and the patrouilles; to give every night the orders and the word, after the gates are shut; to visit the posts; to see that both officers and soldiers do their duties; to send frequently parties abroad for intelligence, and to raise contributions.

Grenadier. A foot soldier, armed with a sword, fire-lock, bayonet, and a pouch to hold his grenades. They are clothed differently from the rest of the battalion, and wear high caps. Each regiment of late years has a company of grenadiers, which take always the right of the battalion. The grenadiers are generally the tallest and briskest fellows, and always the first upon attacks: when there is any appearance of action, each grenadier carries three hand grenades. Horse grenadiers, called by the French *Grenadiers volans*, or *Flying Grenadiers*, are such as are mounted on horseback, and fight on foot; their exercise is the same with the other grenadier. We have in England two troops of horse grenadier guards.

Grenadoes, Grenades. Small shells, concave globes, or hollow balls, some made of iron, some of tin, others of wood, and even of pasteboard; but most commonly of iron, because the splinters of it do most execution. This globe is filled with fine powder, and into the touch hole of it is stuck a fusee of powder, beaten and tempered with charcoal dust, that it may not flash, but burn gently 'till it comes to the charge. These are thrown by hand into places where men stand thick, and particularly into the trenches and lodgments the enemy makes, and do great mischief. See *Bomb*.

Thuanus observes, that the first time grenadoes were used, was at the siege of Wachtendonck, a town near

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Guelders, in 1388, and that the inventor was an inhabitant of Venlo, who, in making an experiment thereof, occasioned two thirds of that city to be burnt; the fire being kindled by the fall of a grenado.

Guard. The duty performed by a body of men with vigilance, to secure all against the attempts and surprizes of an enemy. 'To be upon guard,' 'to mount the guard,' 'to relieve the guard,' 'the officer of the guard,' 'the serjeant of the guard,' are phrases respecting the guard, and all intelligible. In time of danger, all guards are drawn by lot, to prevent any treacherous officers having the opportunity of betraying a post to the enemy. Troops in garrison, generally mount the guard every third night, and have two nights to rest.

Counter-Guard. See *Counter*.

Guard is properly understood of a soldier detached from a company or corps, to protect, detain, or secure any person, &c.

Main Guard, is that from whence all the other small guards are detached. Those who are to mount the guard, meet at the respective captain's quarters, and are carried from thence to the parade; where, after the whole guard is drawn up, the small guards are detached for the ports and magazines, and the subaltern officers throw lots for their guards, and are subordinate to the captain of the main guard. The guards are mounted in garrisons at different hours, according as the governor pleases; but the most usual time is at the opening of the gates at ten o'clock, or at two in the afternoon.

Advanced Guard, is the party of either horse or foot that march before a body, to give them notice if any danger appears. When the army is upon their march, the grand guards, who should mount that day, serve as an advance guard to the army. If a body of foot be marching, their advance guard are foot. In small parties, 6 or 8 horse are sufficient, and they are not to go above 4 or 500 yards before the party. An advanced guard is likewise the small body of 12 or 16 horse, under a corporal or quarter-master, who are posted before the grand guard of the camp.

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Rear Guard, is that part of the army which brings up the rear, which is generally the old grand guards of the camp. The rear guard of a party is 6 or 8 horse, that march about 4 or 500 paces behind the party. The advanced guard going out upon party, make the rear guard in their return.

Grand Guard, are 3 or four squadrons of horse, commanded by a field officer, posted before the camp on the right and left wing towards the enemy, for the security of the camp. This guard mounts every morning about seven or eight o'clock. See *Camp*.

Standard Guard, a small guard, under a corporal, out of each regiment of horse, and placed on foot, in the front of each regiment.

Picket, or *Piquet Guard*. A certain number of horse and foot, who are to keep themselves in readiness, in case of an alarm: the horse keep their horses saddled, and are booted all the time, in order to mount in a minute. The foot draw up at the head of the battalion, at the beating of the tattoo; but return to their tents, where they hold themselves in a readiness to march upon any sudden alarm. This forms a good body, able to make a resistance, till the army can be in readiness.

Forage Guard. A detachment sent out to secure the foragers, and are posted at all places, where either the enemy's parties may come to disturb the foragers, or they may be dispersed too near the enemy, and be taken. This is likewise called the *Covering Party*, and marches the night before the foraging, that they may be posted in the morning before the foragers come. They consist both of horse and foot, and must stay at their post, till the foragers are all come off the ground.

Quarter Guard, a small guard commanded by a subaltern officer, posted by each battalion, about 100 yards before the front of the regiment.

Artillery Guard, is a detachment from the army, to secure the artillery. Their *Corps de Garde* is in the front, and their centries round the park. This is a 48 hours guard, and upon a march they go in the front and rear of the artillery, and must be sure to leave nothing behind.

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hind. If a gun or waggon break down, the captain is to leave a part of his guard to assist the gunners and matrosses in raising it again.

Corps de Garde, are soldiers entrusted with the guard of a post, under the command of one or more officers.

Van Guard, that part of the army which marches in the front.

Guards, Gardes du Corps. The *Horse Guards* are gentlemen chosen for their bravery and fidelity, to be entrusted with the guard of the king's person, divided, in England, into four troops, called the troops of guards. Each troop hath a colonel, two lieutenant-colonels, a cornet, a guidon, four exons, brigadiers, and sub-brigadiers, and 160 private men. The *Foot Guards* are regiments of foot appointed for the guards of his Majesty, and his palace: there are three regiments of them, called the first and second regiments of guards, the one having three battalions, and the other two; and the regiment of Scots guards, having likewise two battalions.

Gueritte. A centinel's box, being a little tower made either of stone, brick, or wood, to preserve the centinel from the weather. Some call them *Echaugettes*. They are generally placed on the points of bastions, and angles of the *Epaule*, and sometimes in the middle of a curtain, and are to hang a little over the wall, that the centinel may look down to the foot of the ramparts, and into the foss, to prevent surprize.

Guides. Captain of the guides is an officer appointed for providing guides for the army, of which he ought to have always a sufficient number with him, who know the country, to send out as occasion requires. Such as are to guide the army on a march, for convoys, parties, baggage, artillery, and detachments; to provide which he ought to have a party of horse to go to the adjacent villages, castles, or foris, to demand boors, whom he brings to his quarters, and keeps under a guard, lest they should escape, till the army come to another ground, where he can be provided with others: he ought to understand several languages, especially that of the country in which the army is.

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Guidon. A French term for him that carries the standard in the guards, or *Gens d'Armes*, and signifies likewise the standard itself. It is now become common in England. He is the same in the horse-guards, that the ensign is in the foot. The guidon of a troop of horse takes place next below a cornet.

Gun, a fire-arm, or weapon of offence, which forcibly discharges a ball, shot, or other offensive matter, through a cylindrical barrel, by means of gunpowder. See the article *Gunpowder*.

Gun is a general name, under which are included divers, or even most, species of fire arms. They may be divided into great and small.

Great guns, called also by the general name cannons, make what we also call ordnance, or artillery; under which come the several sorts of cannons, as cannon-royal, demi-cannons, &c. culverins, demi culvers, fakers, minions, falcons, &c. See *Cannon*, *Culverin*, &c. also *Ordnance* and *Artillery*.

Small guns include musquets, musquetoons, carabines, blunderbusses, fowling-pieces, &c. See the article *Musquet*, &c.

Pistols and mortars are almost the only sort of regular weapons, charged with gunpowder, that are excepted from the denomination of guns. See the articles *Pistol* and *Mortar*.

The advantage of large guns, or cannons, over those of a smaller bore, is generally acknowledged. Robins observes, that this advantage arises from several circumstances, particularly in distant cannonading. The distances to which larger bullets fly with the same proportion of powder, exceeds the flight of the smaller ones almost in proportion to their diameters; so that a thirty-two pound shot, for instance, being somewhat more than six inches in diameter, and a nine pound shot but four inches, the thirty-two pound shot will fly near half as far again as that of the nine pound, if both pieces are so elevated as to range to the farthest distance possible. Another and more important advantage of heavy bullets is, that with the same velocity they break holes in all solid

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solid bodies, in a greater porportion than their weight. Finally, large cannons, by carrying the weight of their bullet in grape or lead-shot, may annoy the enemy more effectually than could be done by ten times the greater number of small guns.

Mr. Robins has proposed to change the fabric of all the pieces employed in the British navy, from the 24 pounders downwards, so that they may have the same or less weight, but a larger bore. He thinks the 32 pounders in present use would be proper models for this purpose. These being of 52 or 53 hundred weight, have somewhat less than a hundred and two thirds for each pound of bullet. And that this proportion would answer in smaller pieces, in point of strength seems clear from these considerations: 1. That the strength of iron, or any other metal, is in proportion to its substance. 2. That the lesser quantity of powder fired in a space it fills, has proportionably less force than a larger quantity; so that if two pieces, a large and a small one, be made in the same proportion to their respective bullets, and fired with a proportionable quantity of powder, the larger piece will be more strained, will heat more, and recoil more than the smaller. On this scheme our present 24 pounders will be eased of 6 or 8 hundred weight of useless metal; and some pieces of a less calibre, as 9 and 6 pounders, would be sometimes eased by 14 hundred: hence much larger guns of the same weight might be borne. Thus instead of 6, 9, 12, and 18 pounders, our ships might carry 12, 18, and 24 pounders: guns would be kept cooler and quieter, and would be of more service in many respects, if their usual charges of powder were diminished.

Gunner. An officer oppointed for the service of the cannon; or one skilled to fire the guns.

In the tower of London, and other garrisons, as well as in the field, this officer carries a field staff, and a large powder-horn in a string over his left shoulder: he marches by the guns, and when there is any danger, his staff is armed with match: his business is to lay the gun to pass, and to help to load and traverse her.

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Master Gunner, a patent officer of the ordnance, who is appointed to teach all such as learn the art of gunnery, and to certify to the master-general the abilities of any person recommended to be one of the king's gunners. To every scholar he administers an oath, not to serve, without leave, any other prince or state; or teach any one the art of gunnery, but such as have taken the said oath.

A gunner should know his pieces, their names, which are taken from the height of the bore, the names of the several parts of a piece of ordnance, how to tertiate and pispert his gun, &c.

Gunnery, the art of charging, directing, and shooting guns and mortars to the best advantage.

In gunnery, it is necessary to know the force and effect of gunpowder, the dimensions of pieces, and the proportions of powder and ball they carry, with the methods of managing, charging, pointing, sponging, &c.

The method of elevating the piece to any given angle, and computing its range; that is, raising and directing it so as to hit any proposed object, is brought under mathematical considerations. The instrument chiefly used herein are the callipers, or gunner's compasses, quadrant, and level.

The line or path which a bullet describes, whatever direction or elevation the piece be in, is the same with that of all projectiles, namely, a parabola.

Maltus, an English engineer, is mentioned as the first who taught any regular use of mortars, in 1634; but he knew nothing of the curve the shot describes, nor of the difference of range at different elevations; though there are certain rules founded on geometry for these things, most of which we owe to Galilæo, and his disciple Torricellius.

A ball or bomb begins to rise from its line of direction, the moment it is out of the mouth of the piece; for the grains of powder nearest the breech, taking fire first press forward, precipitately, not only the ball, but likewise those grains which follow the ball along the bottom of the piece; where successively taking fire, they strike the ball underneath, and so raise it towards the upper
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edge of the mouth of the piece, where a considerable canal is observable in pieces much used, whose metal is soft, from the friction thereof.

Gunpowder, a composition made of saltpetre, sulphur, and charcoal incorporated and granulated, which readily takes fire and expands with incredible force.

Bartholdus Schwartz, or the Black, was the first who taught the use of gunpowder to the Venetians in 1380; but what shews gunpowder to be of an older æra is, that the Moors, being besieged in 1343, by Alphonfus, discharged a sort of iron mortars that made a noise like thunder. There is mention made of gunpowder in the registers of the chambers of accounts in France, as early as 1338. In short, our countryman Roger Bacon knew of gunpowder one hundred and fifty years before Schwartz was born: for that friar expressly mentions the composition in his treatise *De Nullitate Magiæ*.

In order to reduce the nitre to powder, they dissolve a large quantity of it in as small a proportion of water as possible; the keeping it continually stirring over the fire, till the water exhales, a white dry powder is left behind.

In order to purify the brimstone employed, they dissolve it with a very gentle heat; then scum and pass it through a double strainer. If the brimstone should happen to take fire in the melting, they have an iron cover that fits on close to the melting vessel, and damps the flame. The brimstone is judged to be sufficiently refined if it melts without yielding any foetid odour, between two hot iron plates, into a kind of red substance.

The coal for making of gunpowder is either of the willow or hazel, well charred in the usual manner, and reduced to powder: and thus the ingredients are prepared for making this commodity; but as these ingredients require to be intimately mixed; and as there would be danger of their firing, if beat in a dry form, the method is to keep them continually moist either with water, urine, or a solution of sal ammoniac; and to continue thus stamping them together for twenty-four hours;
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after which the mass is fit for corning, and drying in the sun, or otherwise, so as sedulously to prevent its firing.

The explosive force of gunpowder is now a thing commonly known; but the physical reason thereof may not, perhaps, be hitherto sufficiently understood. In order to explain it, let us observe, 1. That salt-petre, of itself, is not inflammable; and though it melts in the fire, and grows red-hot, yet does not explode, unless it comes in immediate contact with the coals. 2. That brimstone easily melts at the fire, and easily catches flame. 3. That powdered charcoal readily takes fire, even from the sparks yielded by a flint and steel. 4. That if nitre be mixed with powdered charcoal, and brought in contact with the fire, it burns and flames. 5. That if sulphur be mixed with powdered charcoal, and applied to the fire, part of the sulphur burns slowly away, but not much of the charcoal. And, 6. That if a lighted coal be applied to a mixture of nitre and sulphur, the sulphur presently takes fire, with some degree of explosion, leaving a part of the nitre behind; as we see in making the *sal prunellæ* and *sal polychrestum*.

These experiments, duly considered, may give us the chemical cause of the strange explosive force of gunpowder: for each grain of this powder, consisting of a certain proportion of sulphur, nitre, and coal, the coal presently takes fire, upon contact of the same spark; at which time both the sulphur and the nitre immediately melt, and, by means of the coal interposed between them, burst into flame, which spreading from grain to grain propagates the same effect almost instantaneously; whence the whole mass of powder comes to be fired: and as nitre contains a large proportion both of air and water, which are now violently rarified by the heat, a kind of fiery explosive blast is thus produced; wherein the nitre seems, by its aqueous and aerial parts, to act as bellows to the other inflammable bodies, sulphur and coal, blow them into a flame, and carry off their whole substance in smoke and vapour.

The discovery of this composition was accidental, and perhaps owing to the common operation of fulminating nitre with sulphur, for making of *sal-prunellæ*:

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it appears to have been known long before the time of Schwartz, as being particularly mentioned by friar Bacon, as we have before observed.

The three ingredients of gunpowder are mixed in various proportions, according as the powder is intended for musquets, great guns, or mortars; though those proportions seem hitherto not perfectly adjusted, or settled by competent experience.

There are two general methods of examining gunpowder; one with regard to its purity, the other with regard to its strength: its purity is known by laying two or three little heaps near each other upon white paper, and firing one of them; for if this takes fire readily, and the smoke rises upright, without leaving any dross, or feculent matter behind, and without burning the paper, or firing the other heaps, it is esteemed a sign that the sulphur and nitre were well purified; and the coal was good; and all the three ingredients were thoroughly incorporated together: but, if the other heaps also take fire at the same time, it is presumed, that either common salt was mixed with the nitre, or that the coal was not well ground, or the whole mass not well beat and mixed together; and, if the nitre or sulphur was not well purified, the paper will be black or spotted.

In order to try the strength of gunpowder, there are two kinds of instruments in use; but neither of them appear more exact than the common method of trying to what distance a certain weight of powder will throw a ball from a musquet.

To increase the strength of powder, it seems proper to make the grains considerably large, and to have it well sifted from the smallest dust. We see that gunpowder reduced to dust has but little explosive force; but, when the grains are large, the flame of one grain has a ready passage to another, so that the whole parcel may thus take fire near the same time; otherwise much force may be lost, or many of the grains go away, as shot unfired.

It should also seem that there are other ways of increasing the strength of powder, particularly by the mixture

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ture of salt of tartar: but perhaps it were improper to divulge any thing of this kind, as gunpowder seems already sufficiently destructive.

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HALBARD, or *Halbert*. A well known weapon carried by serjeants of foot and dragoons. It is a sort of spear, the shaft of which is about 5 feet long, and made of ash or other wood. Its head is armed with a steel point edged on both sides, not unlike the point of a two edged sword; but besides this sharp point, which is in a line with the shaft, there is a cross piece of steel, flat and pointed at both ends; but generally with a cutting edge at one extremity, and a bent sharp point at the other, so that it serves equally to cut down, or push withal. It is also useful in determining the ground betwixt the ranks, and in adjusting the files of a battalion.

Half Files. The three foremost men in the field, when a battalion is drawn up, are called the *Front Half Files*, the three hindmost men the *Rear Half Files*.

Half moon or *Demi-lune*. A work which is commonly made before the curtain or flanked angle of the bastion: the former generally consists of two little flanks and two faces, which terminate in a saliant angle towards the fields; the gorge of the demi-lune is terminated by two lines, continued from the counterscarpe of the fossé, that form an entering angle towards the place, about the middle of the curtain. The demi-lune on the flanked angle of the bastion, differs only from the former, in that it is formed by a circular line, and hence it takes its name *Demi-lune*.

The moderns make use of good counter guards to cover the bastions instead of the demi-lunes.

They call a demi lune what was formerly denominated a ravelin, only that this last work has no flanks, and has two faces terminating in a saliant angle towards the fields.

A demi-lune is said to be crowned when it is covered by

by a crowned work : it is in like manner said to be a *tenaille*, when on the right and left it has two works constructed in a right angle on the flanked angle of the *demi-lune*, by the prolongation of its two faces between twenty-eight and thirty toises ; each of these works having two faces, terminating in a saliant angle towards the field, and a ditch of nine toises that separates them from the *demi-lune* and *counterscarp*.

Lastly a *demi-lune* is called a *horn work*, when it is counter guarded by two works that advance in the form of a horn towards the country, having before it a little *demi-lune* or *lunette* that covers the intermed ate space betwixt them, and consequently the flanked angle of the *demi-lune*.

To Halt. Is to discontinue the march of troops, to stand still, to stop in order to rest, or on any other account whatsoever ; and so the word of command for men to stop when they are marching, is *Halt*.

Hand-barrows. Wheelbarrows, which are in great use in fortification, for carrying earth from one place to another, and in a siege for carrying bombs or cannon balls along the trenches.

Harquebus. A piece of fire arms of the length of a musquet, usually cocked with a wheel. It carries a ball that weighs one ounce three quarters. There are also a larger sort called the great *harquebus*, used for the defence of strong places, which carries a ball of about three ounces and a half, but they are now little used, except in some old castles, and by the French in some of their garrisons.

Head of the Camp. The ground before the camp, where is the *Bivouac*, or on which the army draws out.

Head of a Work. Its front next the enemy, and farthest from the place ; as the front of a horn work is the distance between the flanked angles of the *demi-bastions*. The head of a double *tenaille* is the saliant angle in the middle ; and the two other sides, which form the re-entering angle.

Helmet. An ancient defensive armour worn by horsemen both in war and in tournaments. It covered both the head

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head and face, only leaving an aperture in the front secured by bars, which was called the visor.

Hendecagon. A figure that has eleven sides, and as many angles, capable of being fortified by the like number of bastions.

Heptagon. A figure that has seven sides and as many angles, each capable of a regular bastion.

Herrison. A barrier made of one strong beam or plank of wood, full of iron spikes. It is supported in the middle, and turns upon a pivot or axis. It is used in stopping a passage like a turn-stile; for it is equally ballanced upon the pivot, standing upright in the middle of the passage, upon which it turns round, as there is occasion to open or shut the passage.

Hearfes or Portcullices. Strong pieces of wood joined cross-ways, like a lattice or harrow. They used formerly to hang in the middle of a gateway of fortified towns, to be let fall to stop the passage, in case the gate had been broke down, or retarded. It is either a stop or a separation, if any of the enemy have already entered; for before it can be broke open, the besieged have time to rally, and repulse them. See *Orgues*.

Herse, is likewise an engine like a harrow, full of iron spikes; and used instead of the *cheveaux de frise*, to throw in the ways where horse or foot are to pass, to hinder their march, and upon breaches to stop the foot. Common harrows are sometimes made use of in case of haste, and are turned with their points upwards.

Herfillon, is for the same use as the herse, and is made of one strong plank of wood, about ten or twelve feet long, stuck full of points or spikes on both sides.

Hexagon, is a figure of six sides, capable of being fortified with six bastions.

Hobits. A sort of small mortars, about eight inches diameter, some seven, some six. They differ nothing from a mortar but in their carriage, which is made after the fashion of a gun-carriage, but much shorter. They march with the guns, and are very good for incommoding an enemy at a distance, with small bombs, which they throw two or three miles; or in keeping a pass, being loaded with cartouches.

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Hogheads, or Barrels. Filled with earth, they serve to make parapets to cover the men, instead of gabions or earth bags.

Hollow Square. Vide *Square*.

Hollow Tower, is a rounding made of the remainder of two brisures, to join the curtain to the orillon, where the small shot are played, that they may not be so much exposed to the view of the enemy.

Honey Comb in Cannon. Flaws in the metal, a fault in casting, and dangerous in firing.

Horizontal Superficies. The plain field lying upon a level, without any rising or falling.

Horizontal Range, or Level Range of a Piece of Ordnance, is the line a ball describes when directed parallel to the horizon or horizontal line.

The horizontal ranges are the shortest : some pieces of cannon will make them six hundred paces, and some but one hundred and fifty ; and the ball with the range of six hundred paces, will go from nine to thirteen feet in the earth. See *Gunnery*.

Horn work. In French, *ouvrage a corne*. Is an outwork which the French engineers prefer before *Tenailles*, *Swallow Tails*, or *Priest Bonnets*, because it takes in a great deal of ground, and has a better defence. It is composed of two long sides or faces parallel, the distance between them being the length of one curtain ; their length measuring from the angle of the shoulder, is the length of one side of the polygon, or of the curtain, and one demi gorge. The head or front of this work is fortified with two demi-bastions and a curtain. They have sometimes flanks on their long sides, and then they are called horn works with double flanks or shoulders. They have generally a ravelin in their gorge, and a small ravelin before the curtain. The parapet of the horn work is the same with that of the half moon, and its moat is three fourths of the great moat. Its curtain is usually defended by an half moon, whose moat is three fourths of that of the great half moon, before the curtain of the place. According to Vauban none of the outworks is equal in strength to the horn work, if placed before the bastion, and not as usual before the curtain.

Horse.

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Horſe. Is taken for that body of men that ſerve on horſeback, whether guards, troopers, or dragoons. So we ſay ‘A body of horſe’, ‘The horſe fought well’, ‘The horſe march.’ It is the ſame as cavalry. The light horſe in an army, are all the regiments of horſe except the guards.

Herſe de Friſe. Vide *Cheveaux de Friſe*, and *Turnpikes*.

Horſhoe. A ſmall round or oval work, enclosed with a parapet, and ſometimes raiſed in the moat of a marſhy place, or in low grounds, or elſe to cover a gate, and keep a *Corps de Garde* to prevent ſurprizes, or to ſerve as a lodgement for ſoldiers.

Hospital. A place appointed for the ſick and wounded men, who have there a number of phyſicians, ſurgeons, and ſervants to attend them, and cure them.

Hoſtage. A perſon given up to an enemy as a ſecurity for the performance of the articles of the treaty. When two enemies enter into a treaty or capitulation, it is common for them mutually to give hoſtages as a ſecurity for their reciprocally performing the engagement they have entered into. An hoſtage becomes either an acceſſary or principal, according to the ſtate of things. Thus for example, he is an acceſſary, when a prince promiſes fidelity to another prince, and gives either his ſon or ſome great lord, as a ſecurity for his performance without any further capitulation: for then theſe hoſtages are only an additional engagement of the prince; and if he violates his word, they are not in any manner reſponſible for it. An hoſtage becomes a principal, when it is ſtipulated that he ſhall be anſwerable for the event of things. For example, if a city promiſes to ſurrender within a certain time, in caſe it is not ſuccoured, and for the ſecurity of this article gives hoſtages, theſe hoſtages are of the ſame nature as bail given to a creditor to ſecure a debt; ſo that if the ſuccour arrives within the time, the promiſe becoming void, the hoſtages are diſcharged, and cannot be detained, juſt as the bail is diſcharged, if the original debtor pays the creditor; but if the ſuccours do not arrive, and the city is guilty of a breach of faith, by reſuſing to ſurrender, then the hoſtages become principal, and may be puniſhed for the breach of faith; juſt as a

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bail becomes the principal debtor, on the other debtor's becoming insolvent. An hostage given for another person is free in case that other person dies. According to the law of nations, hostages ought not to be put to death, unless they themselves have been guilty of some particular crime.

Hostility, implies a state of war or enmity between two nations. During a truce all acts of hostility cease on both sides.

Hurales. See *Clayes*.

Hussars. Hungarian horsemen. Their habit is a furr'd bonnet, adorned with a cock's feather, (the officers either an eagle's or a heron's) a doublet with a pair of breeches, to which their stockings are fastened, and boots. Their arms are a sabre, carbines, and pistols. Before they begin an attack, they lay themselves so flat on the necks of their horses, that it is hardly possible to discover their force; but being come within pistol shot of the enemy, they raise themselves with such surprising quickness, and fall on with such vivacity on every side, that, unless the enemy is accustomed to them, it is very difficult for troops to preserve their order. When a retreat is necessary, their horses have so much fire, and are so indefatigable, their equipage so light, and themselves such excellent horsemen, that no other cavalry can pretend to follow them; they leap over ditches, and swim over rivers with great facility. They are retained in the service of most princes on the continent. They are resolute partisans, and are far better in an invasion or hasty expedition, than in a set battle.

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JACK-WAMBASIUM. An old piece of defensive armour worn by horsemen in war, not made of solid iron, but of many plates fastened together, which some persons by tenure were bound to find upon any invasion.

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Janizaries. An order of the Turkish infantry, reputed the Grand Signior's guards, and the main strength of the Ottoman army. Their dress which is given them by the Grand Signior every year, on the first day of Ramazan, is a long vest with short sleeves, which they tie about their waists with a linen sash striped with many colours, and adorned at both ends with gold or silver fringe, and over this they wear a loose upper vest of blue cloth. They wear no turban, but instead of it a felt cap, and a large hood of the same stuff, which hangs over their shoulders; and on days of ceremony, they adorn themselves with long feathers stuck in a case in the front of their bonnets. The arms of the Janizaries in Europe are, in time of war, a fusée or musquet, and a cartouch box, which hangs at their left side; but in Asia, where powder and fire-arms are more scarce, they carry a bow and arrows with a poignard.

Ichnography, implies the plan or representation of the length and breadth of the fortress, the distinct parts of which are marked out, either on the ground itself or on paper.

Incamp. To incamp is the pitching of tents, when the army after a march is arrived at a place where it is designed to stay a night, or longer. The serjeants tents in the foot, and quarter-masters of horse, are the first of the company or troop. The officers incamp in the rear; the subalterns in one line next the company, fronting from it; the captains in another line at some distance, each behind his own company, fronting the subalterns; the field officers behind them, the colonel in the centre, the lieutenant colonel on his right, the major on his left, and the sutlers behind all. Each company makes a line in file, having an allowance of seven feet for a tent, and two feet distance: the tents of two companies front one another, leaving a street of 5 or 6 yards between them. The troops of horse encamp the same way, only the distance between the tents is about 3 or 4 yards for the forage, and the space between two troops, is 14 or 15 yards for the stables: at two yards distance from the doors of their tents, is a rope called the piquet rope, stretched up-

on

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upon pointed stakes, to which their horses are tied. For the ground allowed by a battalion or squadron. See *Camp*.

Indented Line, is a line running out and in, like the teeth of a saw, forming several angles ; so that one side defends another. They are used on the banks of rivers, where they enter a town ; likewise the parapet of the covert way is often indented. This is by the French engineers called *Redans*. Small places are sometimes fortified with such a line ; but the fault of such fortifications is, that the besiegers from one battery may ruin both sides of the *tenaille* or front of a place, and make an assault, without fear of being enfiladed, since the defences are ruined.

Independent Troop or Company, is what is not incorporated into any regiment.

Infantry. The whole body of foot soldiers, whether independent companies or regiments. The regiments of foot guards take place of all others, the rest having precedence according to seniority. This precedence is for the eldest regiment to march in the front, the next in the rear, and so on with the rest. The eldest to encamp on the right, the next on the left, and so the rest in course. The officers of foot command those of horse in garrison, but are commanded by them in the field. See *Brigade*, and *Soldier*.

Ingineer, or *Engineer*, a person well skilled in the art of contriving all sorts of forts, and other works ; judicious in finding out faults in all fortifications, and knowing how to attack and defend all sorts of posts. See *Engineer*, *Gunner*, &c.

Insconsed, is when part of an army have fortified themselves with a sconce or small fort, in order to defend some posts, &c.

To Insult, or *To Assault*. Is to attack a post by open force, coming on without any shelter to fall to handy strokes, without making use of trenches, sappe, or other forms of art, to gain ground foot by foot. The counter-carp is generally insulted or assaulted, to prevent the enemies having time to spring the fourneaux, or fougasses, they have prepared. In these attacks the grenadiers commonly march at the head of the other troops ; and there

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must be pioneers ready to make a lodgment, to secure the post when gained.

Intrenched. An army is said to be intrenched, when they have raised works before them, to fortify themselves against the enemy, that they may not be forced to engage at a disadvantage.

Intrenchment. Any work that fortifies a post against the enemies attacks. It is generally taken for a ditch or trench, with a parapet. Intrenchments are also made of fascines, or faggots, with earth thrown over them; of gabions, hogheads, or bags filled with earth, that cover the men from the enemy's fire. See *Retrenchment*.

Invalid, is a man who has spent his time in the wars, and is either through age, or by reason of his wounds, rendered incapable of the service. They are disposed of in hospitals.

Investing a Place, is when a general having an intention to besiege it, detaches a body of horse to possess all the avenues; blocking up the garrison, and preventing relief from getting into the place, till the army and artillery are got up to form the siege.

Irregular Fortification. See *Fortification*, and *Maxims in Fortifications*.

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KETTLE, is a term the Dutch give to the battery of mortars, because it is sunk under ground. See *Battery*.

Kettle Drums. See *Drums*.

Klinkets, are a sort of small gates made through palisades for sallies.

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LABORATORY. Signifies the place where the fireworkers and bombardiers prepare their stores.

Ladle for a Gun. A long staff with a plate at the end of it, bowed half round, to put the charge into the piece.

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Lane. To make a lane. To draw up men in two ranks facing one another, as on the sides of a street, or the like, for any great person to pass through ; or sometimes for a soldier to run the gauntlet.

Lanspésade. An inferior officer, subordinate to the corporal, to assist him in his duty, and supply his place in his absence. In France he has some allowance extraordinary, but not in England. He is generally exempt from duty, except rounds, and centinels *Perdus*. He teaches the new soldiers their exercise, and has his place at the right of the second rank. The true name is *anspésade*, but the *L* is added from the French article *Le*.

Law of Arms, is a law which gives precepts how to proclaim a war, attack the enemy, and to punish offenders in the camp.

Artillery-Foot-Level. An instrument in form of a square, having its two legs or branches of an equal length, at a juncture whereof is a little hole, whence hangs a thread and plummet, playing on a perpendicular line in the middle of a quadrant. It is divided into twice 45 degrees from the middle. When the thread plays perpendicularly over the middle division of the quadrant, that plane is assuredly level. To use it in gunnery, place the two ends on the piece of artillery, which you may raise to any proposed height, by means of the plummet, whose thread will give the degree above the level.

Gunner's Level, for levelling cannon and mortars, consists of a triangular brass-plate, about four inches high, at the bottom of which is a portion of a circle divided into 45 degrees, which number is sufficient for the highest elevation of cannon and mortars, and for giving them the greatest range ; on the center of this segment of a circle, is screwed a piece of brass, by means of which, it may be fixed or screwed at pleasure ; the end of this piece of brass is made so as to serve for a plummet and index, in order to shew the different degrees of elevation of pieces of artillery. This instrument has also a brass foot, to set upon cannon or mortars, so as when those pieces are horizontal, the instrument will be perpendicular. The foot of this instrument is to be placed on the piece to be elevated, in such a manner, as that the point of the plummet may fall on the proper degree: this is what they call levelling the piece.

L I E

Lieutenant of Horse, Foot, or Dragoons. The second officer in the troop or company, who commands in the absence of the captain. When the company is at arms, he takes the left of the captain; but the right if the ensign be there. He marches the company in the absence of the captain; but when the captain is present his post is in the rear. When the batalion marches in line of battle, the lieutenants take their post at the head of the divisions, according to their seniority. He ought to inspect the actions of the sergeants and corporals, to keep them to their duty, and take care of every thing that is necessary to the company; to see them exercise, to cause them to keep their arms clean and fit for service, and to see that the soldiers be provided with powder and ball.

Lieutenant Colonel of Horse, Foot, or Dragoons. The second officer in a regiment, and should be a man of great experience; knowing how to attack or defend a post, lead the regiment to battle, and how to make a good retreat. He is to see the regiment kept to their exercise, and is to know the qualifications of all the officers of the regiment. In the absence of the colonel he commands the regiment. His post is on the colonel's left hand, three paces before the captain's, when there is but one battalion of foot; but if the regiment be of two, the colonel commands the first, and he the second. Colonels and lieutenant-colonels are excused from mounting guard when the regiment is in garrison. *Lieutenant Colonel of Horse* is the same; he marches at the head of the second Squadron. But the French have no such officer.

Lieutenant General. A great commander, next in place to the general of an army, who in battle commands one of the lines or wings; a detachment when they march, or a flying camp; a quarter at a siege, and one of the attacks, when it is his day of duty. They ought to be daily with the general to know his orders: they are allowed each two aids de camp, and a foot guard, mounted by a subaltern, with a sergeant and thirty men.

Lieutenant General of the Artillery. The next to the general of the artillery, who in his absence has the whole charge of all that belongs to it.

Lieutenant du Roy. The deputy governor of all strong towns

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towns in France, who is a check upon the governor, and commands in his absence.

Lieutenant Reformed. Vide *Reformed*.

Lieutenant en Second. Vide *Seco^d*.

Life Guards. Vide *Gardes de Corps*.

Light Horse. This name is given to distinguish them from the men at arms formerly used, who were all in armour, as are now the German cuirassiers. In England all are called light horse, except the troops of life guards. In France they except not only the *Gardes de Corps*, but the two troops of musquetaires on horseback, and all the gendarmes. Each regiment consists of six troops, and is commanded by a colonel, lieutenant colonel, major, captains, lieutenants, cornets, and quarter masters. They rank according to seniority.

Line. In the geometrical sense signifies a length without breadth; in the military art it is taken several ways.

Line. Is the drawing up of an army for battle, extending its front as far as the ground will permit, that it may not be flanked. The *Turkish* armies often draw up in a crooked line, or half moon, that being very numerous, they may enclose their enemies. Christian armies generally draw up in three lines; the first called the *Van*; the second, the *Main Body*; and the third, the *Reserve*; with a convenient distance between them, and intervals, that they may not put one another into confusion.

Line. In fortification it bears several significations. In drawing a plan upon paper, it is only a plain line drawn from one point to another. On the ground it is sometimes taken for a trench with a parapet, and sometimes for a row of gabions, or bags full of earth, to cover men from the enemy's fire. So we say, 'When the trenches were carried on within 30 paces of the glacis, we drew two lines, one on the right, and the other on the left, for a place of arms.' *To line a work*, is to trace it out. *To line a work*, is likewise to face it with brick or stone. Lines are sometimes made to cover a country, especially by the *French*.

Line of Defence. A supposed line that represents the flight of a ball; but particularly a musket ball, from the place where the musketeer must stand, to scour the face of

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the bastion. There are two sorts of this line ; the *Fichant*, and the *Razant*, or *Flanking*.

Line of Defence fixed, or fichant. Is a line drawn from the angle of the curtain, to the point of the opposite bastion, which is not to exceed 800 feet ; or, as the *French* say, 120 toises, because that is the length of the port of a musket ; and from the point of the curtain and flank, the face of the opposite bastion is to be defended.

Line Razant, Stringent, or Flanking, or Second Flank. A line drawn from the point of the bastion along the face, till it comes to the curtain, which shews how much of the curtain will clear, or scour the face.

Line forming the Flank. A line drawn from the angle, formed by the two demi-gorges of the bastion, to the angle at the flank. This is only used by *Dutch* engineers.

Capital Line. A line drawn from the point of the bastion to the point where the two demi gorges meet.

Lines of Circumvallation and Contravallation. See *Circumvallation* and *Contravallation*.

Lines of Communication. Are trenches that run from one work to another, so that men may pass between them without being exposed to the enemy : therefore the whole intrenchment round any place is sometimes called a *Line of Communication*, because it leads to all the works.

Lines of Approaches. See *Approaches*.

To line Hedges. To plant musketeers along them under their covert ; to fire upon an enemy that comes open, or to defend them from the horse.

Linspins. Small pins of iron, which keep the wheel of a cannon, or waggon, on the axletree ; for when the end of the axletree is put through the nave, the linspin is put in, to keep the wheel from falling off.

Linstock. A wooden staff, about 3 feet long, upon one end of which is a piece of iron, which divides in two, turning from one another, having each a place to receive a match, and a screw to keep it fast : the other end is pointed, and shod with iron, to stick in the ground. It is used by gunners, to fire the guns.

Lixiere. See *Foreland*.

Leckspit. The small cut or trench, of about a foot wide

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wide, made with the spade, to mark out the first lines of a work that is to be made.

Lodgment. A work raised with earth, gabions, fascines, wool packs, or mantelets, to cover the besiegers from the enemies fire, and to prevent their losing a place which they have gained, and are resolved, if possible, to keep. In conducting the approaches, at certain distances are made lodgments, or places of arms, to flank the trenches, capable of holding an hundred men, which serve as a guard to the trenches. But lodgments made on the glacis, covert way, breach, &c. are much more dangerous, as they are more exposed to the enemies fire, and having less earth. When it is resolved to insult the covert way, there must be great provision made of fascines, sand bags, and other materials in the trenches; and during the action the pioneers, with fascines, wool packs, or sand bags, should be making the lodgment; covering themselves as advantageously as possible from the opposite bastion, or place most to be feared.

Lunette. A small work, counter guard, or envelope, made in the ditch before the curtain. It consists of two faces, making an angle inwards. *Lunettes* are generally made in ditches full of water, to serve instead of a fausse braye, and dispute the passage of the ditch. The terre-plain of it is raised but a little above the surface of the water, and is but twelve feet broad, with a parapet three fathoms thick, so that the whole breadth of the *Lunette* is five fathoms. See *Counter Guard* and *Envelope*.

There are other sorts of *Lunettes*, which are larger, and raised to cover the faces of a half moon: they are likewise composed of two faces, a longer and a shorter.

M

MADRIERS. Long planks of wood very broad, used for supporting the earth in mining, in carrying on a sap, in making coffers, caponiers, galleries, and many other uses at a siege. They are likewise used to cover the mouth of petards after they are loaded, and are fixed with the petards to the gates, or other places designed to

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be forced open. When the planks are not strong enough, they are doubled with plates of iron.

Magazine. A place in which stores are kept, of arms, ammunition, provisions, &c. Every fortified town ought to be furnished with a large magazine, which should contain stores of all kinds, sufficient to enable the garrison and inhabitants to hold out a long siege, and in which smiths, carpenters, wheelwrights, &c. may be employed in making every thing belonging to the artillery, as carriages, waggons, &c.

Mail, or Coat of Mail. A piece of defensive armour for the body, made of small iron rings, interwoven in the manner of a net.

Main Body of the Army, is the body of troops that march between the advance and the rear guard. In a camp, it is that part of the army which is encamped between the right and left wing.

Main Guard, is a body of horse posted before the camp, for the safety of the army. In garrison it is that guard to which all the rest are subordinate. See *Guard*.

Major of a Regiment of Horse or Foot, is the next officer to the lieutenant colonel, and generally made from the eldest captain. He is to take care that the regiment be well exercised, that it be drawn up in good order at a review, or upon a parade, or any other occasion; to see it march in good order, and to rally it, in case of its being broke. He is the only officer among the foot that is allowed to be on horseback in time of action, that he may be the readier to execute the colonel's orders, either in advancing or drawing off the regiment. He has an adjutant appointed for his assistant.

Major General, is the next officer to the lieutenant general. When there are two attacks at a siege, he commands that on the left. His chief business is to receive the orders every night from the general, or, in his absence, from the lieutenant general of the day, which he is to distribute to the brigade majors, with whom he is to regulate the guards, convoys, &c. and appoint the place and hour of their rendezvous. He is to know the strength of each brigade in general, and of each regiment in particular, and to have a list of all the field officers. Finally,

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he is in the army, the same as the major of a regiment in the regiment. He is allowed an aid de camp, and has a serjeant and fifteen men for his guard.

Major of a Brigade. See *Brigade Major*.

Major of a Regiment of Horse, is the first captain, who commands in the absence of the colonel.

There are also *Aids Major, Drums Major, &c.* so called from their pre-eminence above others of the same denomination.

Town Major, is the third officer in a garrison, and next to the deputy governor. His business is to see the guards mounted, the rounds and posts assigned; he regulates the centinels, goes every evening to receive the word from the governor, and gives it out upon the place of arms, to the adjutants and serjeants of the garrison; he goes his round major, visits the corps de gardes, and sees that all the soldiers arms are fixed, and in good order; he causes necessary ammunition to be distributed among them, orders the gates to be opened and shut, and gives the governor an account of all that passes in the place.

Mantelets. Blinds of thick planks, musket proof, and often covered with tin or latten, which the pioneers generally roll before them, they being fixed upon low wheels, or trucks, to cover them from the enemy's fire. There are double mantelets, which make an angle, and stand square to form two fronts, and cover the front and flank. These have double planks, with earth rammed in between them. They must be five feet high, and three in breadth. They are sometimes the thickness of two or three planks, bound together with iron plates. They are used in making approaches and batteries near the place, as the others are in making lodgments on the counter-scarp.

There are other sorts of mantelets covered on the top, whereof the miners make use, to approach the walls of a town or castle.

March, in general, is the steps made in marching, or the moving of a body of men from one place to another. The beat of the drum, when the soldiers are upon march, or beginning to march, is likewise called The March. It is likewise a word of command when a battalion is to alter

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its disposition. The general and assembly are beat before the march or party, when an army is to set out in a morning.

Mareschal de Bataille. It was once a distinct command ; but this duty being only part of the major general's, it is now executed by him.

Mareschal, or Marshal de Camp. A French general officer, next in post to the lieutenant general. We find no difference betwixt him and the English major general.

Marines. Soldiers who serve on board of ships.

Marque, or Letters of Marque, in military affairs, are letters of reprisal, granting the subjects of one prince or state, liberty to make reprisals on those of another, by reason application has been thrice made to the government to which the aggressor belongs, without any effect.

Marshal, or Mareschal of France, is the highest preferment in the army or in the fleet : it is the same with captain general. When two or more marshals are in one army, the eldest commands.

Velt Marshal, in Germany, Holland, and lately field marshal in England, is likewise the same with captain general.

Martial Law, is the law of war, which entirely depends on the arbitrary power of the prince, or of those to whom he has delegated it ; for though the king can make no law in time of peace, without the consent of parliament, yet in time of war he uses an absolute power over the army.

Master, or Maitre de Camp. No other than a colonel of horse, so called in France and Spain, where they give the title of colonels only to those that command regiments of foot and dragoons ; whereas with us they are all indifferently called colonels.

Master de Camp General. The second general officer over all the regiments of light horse, and next to the colonel general. He has a regiment of horse belonging to him, which takes the second post of honour next to the colonel general's. This too is in France, for there is no such among the English officers.

Master of the Ordnance. See *General of the Artillery.*

Match. A kind of rope slightly twilted, and prepared to retain fire for the uses of artillery, mines, fire works,

&c.

&c. It is made of hempen tow, spun on the wheel like cord, but very slack; and is composed of three twists, which are afterwards again covered with tow, so that the twists do not appear: lastly, it is boiled in the lees of old wines. This, when once lighted at the end, burns on gradually and regularly, without ever going out as long as any of it is left. It was formerly used for firing match-lock muskets, and now for all sorts of great guns. It is also laid in mines that are to blow up so many hours after, and the time is regulated by the length of match there is to burn before the fire comes to the powder; and by the same rule, those that are used to it, know how the hours pass.

Matrosses. A sort of soldiers in the artillery, next in degree under the gunners, who assist them about the guns, in traversing, sponging, firing, loading, &c. They carry firelocks, march along with the store waggon, as a guard, and also as assistants, in case a waggon should break down.

Maxims in Fortification, are certain general rules established by engineers, founded on reason and experience, which being exactly observed, a place fortified according as they direct, will be in a good posture of defence. The chief maxims are:

1. *There must not be any part of a fortification, but what is discovered and flanked by the besieged.* For if there be any part of a place which is not well flanked, the enemy being there under cover, will with the more ease attack it in that place, and carry it.

2. *A Fortress should command all the country round it;* that the besiegers may not cover themselves, nor find places to favour their approaches and attacks, nor to overlook the place, to batter the works with more advantage.

3. *The works farthest distant from the centre of the place, must be still lowest, and commanded by those that are nearer;* to the end they may be defended by the higher works, and those nearer the place, that so the enemy, by being exposed, may be obliged to quit them, after they have been possessed of them, because of the fire of the besieged; and likewise, that the enemy, by being masters of such works, may not overlook the works of the place.

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4. *The flanked angle, or point of the bastion, ought to be at least 70 degrees; that it may the better resist the force of the enemy's batteries, in case they designed to beat it down to lodge there.*

5. *The acute flanked angle, near to a right angle, is preferable to all others.* It is certain, if the flanked angle be a right angle, it has all the strength that can be given it, having solidity enough to withstand the enemy's batteries; but an angle near to a right, makes the tenaille of the place more compact, by the angle of the shoulder's shortening and bettering the defence, and by its not exposing the face so much to the enemy. So that it follows of consequence, that an obtuse angle is very deficient.

6. *The shortest faces are the best;* because the longer they are, the weaker; for the enemy attacks them with a great front. However, they must be at least forty or fifty fathoms long, to be able to defend the outworks.

7. *The flank must have some part under cover.* Which signifies, it must be covered by an orillon, otherwise the defence is presently ruined, and the lodgment no sooner made on the counterscarp, but the place is obliged to capitulate.

8. *There must be a conformity between these maxims, to render the fortification perfect.* For if the gorge be large, the face suffers. The more the flank is covered, the less it is subject to be ruined, but then the defence is more oblique. In making a second flank, the flanked angle is made too weak. In discovering the face, the defence is more easy, but it is more exposed to the enemy's batteries. In a word, there are advantages and disadvantages over all; and the secret consists in judging whether conforming with one maxim be more advantageous, than disagreeing with another.

Measure Angle. An instrument of brass for measuring angles, either saliant or reentrant, to know exactly the number of degrees and minutes, to lay them out upon paper.

Merlon. That part of the parapet which is terminated by two embrasures of a battery; so that its height and thickness is the same with that of the parapet; but its breadth is ordinarily nine feet on the inside, and six on the

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the outside. It serves to cover those on the battery from the enemy: and it is better of earth, well beat and close, than of stone, because this flies about, and wounds those whom the work should defend.

Military Architecture. The same with *Fortification*. See *Fortification*. For *Military Utensils*, see plates I. and II.

Military Execution. The ravaging and destroying a country that refuses to pay contribution.

Militia, in general, denotes the body of soldiers, or those who make profession of arms.

In a more restrained sense, *Militia* denotes the trained bands of a town or country, who arm themselves, upon a short warning for their own defence. So that, in this sense, militia is opposed to regular or stated troops. For the direction and command of the militia, the king constitutes lords lieutenants of each county.

Mine. A subterraneous canal or passage, dug under the wall or rampart of a fortification, intended to be blown up by gunpowder. The alley, or passage of a mine, is commonly about four feet square; at the end of this is the chamber of the mine, which is a cavity about five feet in width and in length, and about six feet in height; and here the gunpowder is stowed. The faucisse of the mine is the train, for which there is always a little aperture left. There are various kinds of mines, which acquire various names, as royal mines, according as their passages are strait, oblique, winding, &c. There are also mines made in the field, which are called *Fougades*. See the article *Fougade*.

Mines are either dug within the body of the earth, as those made by the besieged to blow up the works of the besiegers, before they make a lodgment on the covered way; or in eminences and rising grounds, as to make a breach in the ramparts, &c. or to blow up walls, or lastly, to tear up rocks.

Two ounces of powder have been found, by experiment, capable of raising two cubic feet of earth; consequently two hundred ounces joined, that is, twelve pounds eight ounces, will raise two hundred cubic feet, which is only sixteen feet short of a cubic toise; because two hundred ounces joined together, have proportionably
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a greater force than two ounces, as being an united force. See the article *Gunpowder*.

All the turnings a miner uses to carry on his mines, and through which he conducts the faucisse, should be well filled with earth and dung; and the masonry in proportion to the earth to be blown up, as three to two. The entrance of the chamber of the mine ought to be firmly shut with thick planks, in the form of a St. Andrew's cross, so that the enclosure be secure, and the void spaces shut up with dung, or tempered earth. If a gallery be made below, or on the side of the chamber, it must absolutely be filled up with the strongest masonry, half as long again as the height of the earth; for this gallery will not only burst, but likewise obstruct the effect of the mine. The powder should always be kept in sacks, which are opened when the mine is charged, and some of the powder strewed about: the greater the quantity of earth to be raised is, the greater is the effect of the mine, supposing it to have the due proportion of powder. Powder has the same effect upon masonry as upon earth, that is, it will proportionably raise either with the same velocity.

The branches which are carried into the solidity of walls, do not exceed three feet in depth, and two feet six inches in width nearly; this sort of mine is most excellent to blow up the strongest walls.

The weight of a cubit foot of powder should be 80lb. one foot one inch cube will weigh 100lb. and one foot two inches and eleven twelfths 150lb.; and 200lb. of powder will be one foot five inches cube; however, there is a diversity in this, according to the quantity of saltpetre in the gunpowder.

If, when the mines are made, water be found at the bottom of the chamber, planks are laid there, on which the powder is placed either in sacks or barrels, of 100lb. each. The faucisse must have a clear passage to the powder, and be laid in an auget, or wooden trough, through all the branches. When the powder is placed in the chamber, the planks are laid to cover it, and others again across these; then one is placed over the top of the chamber, which is shaped for that purpose, between that and those which cover the powder, props are placed, which shore it up; some inclining towards the outside, others

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to the inside of the wall ; all the void spaces being filled with earth, dung, brick, and rough stones. Afterwards planks are placed at the entrance of the chamber, with one across the top, whereon they buttress three strong props, whose other ends are likewise propped against another plank situated on the side of the earth in the branch ; which props being well fixed between the planks with wedges, the branch should then be filled up to its entrance with the forementioned materials. The saucisses which pass through the side branches must be exactly the same length with that in the middle, to which they join : the part which reaches beyond the entrance of the mine, is that which conveys the fire to the other three ; the saucisses being of equal length will spring together.

From a great number of experiments it appears, 1. That the force of a mine is always towards the weakest side ; so that the disposition of the chamber of a mine does not at all contribute to determine this effect. 2. That the quantity of powder must be greater or less, in proportion to the greater or less weight of the bodies to be raised, and to their greater or less cohesion ; so that you are to allow for each cubic fathom of loose earth, 9 or 10 lb. firm earth and strong sand 11 or 12 lb. fat clayey earth, 15 or 16 lb. new masonry, not strongly bound, 15 or 20 lb. old masonry well bound, 25 or 30 lb. 3. That the aperture, or entonnoir of a mine, if right charged, is a cone, the diameter of whose base is double the height taken from the center of the mine. 4. That when the mine has been overcharged, its entonnoir is nearly cylindrical, the diameter of the upper extreme not much exceeding that of the chamber. 5. That besides the shock of the powder against the bodies it takes up, it likewise crushes all the earth that borders upon it both underneath and sideways.

To charge a mine so as to have the most advantageous effect, the weight of the matter to be carried must be known ; that is, the solidity of a right cone, whose base is double the height of the earth over the center of the mine : thus having found the solidity of the cone in cubic fathoms, multiply the number of fathoms by the number of pounds of powder necessary for raising the matter it contains ; and if the cone contains matters of different weights, take a mean weight between them all, always having a regard to their degree of cohesion.

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As to the disposition of mines, there is but one general rule, which is, that the side towards which one would determine the effect be the weakest, but this varies according to occasions and circumstances. The calculation of mines is generally built upon this hypothesis, that the entonnoir of a mine is the frustum of an inverted cone, whose altitude is equal to the radius of the excavation of the mine, and the diameter of whose lesser base is equal to the line of least resistance; and though these suppositions are not quite exact, yet the calculation of mines deduced from them have proved successful in practice; for which reason this calculation should be followed, till a better and more simple be found out.

M. de Valliere found that the entonnoir of a mine was a paraboloid, which is a solid generated by the rotation of a semiparabola about its axis; but as the difference between these two is very insignificant in practice, that of the frustum of a cone may be used.

Miners. Men appointed to work in the mines, being a particular company, commanded by a captain of the regiment of fuzileers, which regiment is appointed for the service of the artillery. When the miner is at work, he wears a sort of hood, to keep the earth that falls from his eyes, this hood throwing it over his shoulders.

Minion Ordnance. A small gun three inches diameter in the bore, seven feet long, weighing about 800lb. takes a charge of two pounds eight ounces of powder, and carries a ball two inches seven eighths diameter, and three pounds four ounces weight. It is shot point-blank 120 paces.

Minion of the longest Size. Is three inches two eighths in the bore, eight feet long, weighs 1000lb. Its charge three pounds four ounces of powder, and carries a bullet three inches diameter, weighing three pounds four ounces. Its shot point-blank 125 paces.

Moat, Ditch, or Fosse. A depth or trench cut round a town or fortress; which lying under the fire of the ramparts, must therefore also be flanked. The breadth and depth of it is more or less, according to the nature of the earth. In general it ought to be so wide, that no tree, or ladder can be laid over it; that is, from 16 to 22

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fathoms, and about 15 and 16 feet deep. The brink of the moat next the rampart, is called the scarp, and that opposite on the other side, is called the counterscarp, which forms a re-entering angle before the center of the curtain. A dry moat round a place that is large, and has a strong garrison, is preferable to one full of water, because the passage may be disputed inch by inch, and the besiegers, when lodged in the moat, are continually exposed to the bombs, grenades and other fire works, which are thrown incessantly over the rampart on their works. In the middle of dry moats, is sometimes made another small moat, called the *cuvette*, which is generally dug so deep, till they find water to fill it. The deepest and broadest fosses are counted the best; but a deep fosse is preferable to a broad one. To drain a fosse or moat full of water, is to dig a trench deeper than the level of the water, to let it run out. When it is drained there are hurdles thrown upon the mud and slime, and covered with earth, or bundles of rushes, to make a sure and firm passage.

Moineau. A French term for a little flat bastion raised upon a re-entering angle, before a curtain which is too long, between two other bastions: it is commonly joined to the curtain, but sometimes separated by a fosse, and is then called a detached bastion. They are not raised so high as the works of the place, because they must be exposed to the fire of the besieged, in case the enemy should lodge themselves there. Their parapet, as well as the parapet of all outworks, ought to be cannon-proof, that is to say, 18 feet thick.

Mont Pagnote, or Post of the Invulnerable. An eminence chosen out of cannon shot of the place besieged, where curious persons post themselves to see an attack, and the manner of the siege, out of danger.

Mortar-piece. A very short piece of artillery, with an extraordinary large bore, and a close chamber: this is to hold the charge of powder; the other to contain the bomb, carcass, or fire pot, it is to throw. Mortars are sometimes mounted on low carriages, like those used for cannon at sea, the wheels being each of one piece. They are not fired right forward, like cannon, but mounted into the air, so that the bomb ascending a vast height, falls with

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with the greater force, and flies the further. Sometimes the mortars are charged with baskets full of stones, which they throw into towns, and do great execution; because falling thick, there is no place of safety from them.

Mortars are used both at sea and land, but they differ very much in form. A *sea Mortar* is generally 13 inches diameter in the bore, is longer and more reinforced than a land mortar, because they are fired with a greater quantity of powder; sometimes with 20 or 30 pounds. Some of them have their beds or stools of metal, cast into a piece with the mortars; others have them of a thick square piece of oak, which, by the help of hand screws or jacks, is turned round upon a strong axis of iron, to fire any way. They carry bombs of 200 pounds, and generally weigh about 9 or 10,000 weight.

Land Mortars are of different sorts; those used most in England, are 10, 13, 15, and 18 inches diameter; but there are smaller mortars of six and eight inches. All but the 18 inch mortars are mounted on a very thick plank of oak, on which rise two cheeks or brackets on the sides of the mortar. But the 18 inch is mounted on a low Dutch carriage, consisting of two strong planks of wood, bound with thick plates of iron, and joined together with transoms of wood. All land mortars may be elevated to any degree of the quadrant. They have no wheels, therefore on a march they are laid upon a block carriage made on purpose. They are never carried along with the army, because of their great weight, except upon an occasion of a siege or bombardment; but a sort of small mortars, called hobits, mounted in gun carriages, are always a part of the field artillery.

Hand Mortars, are likewise of several sorts. As *tinkers Mortars*, which are fixed at the end of a staff, of about four feet and a half long, the other end being shod with iron to stick in the ground, while a soldier with one hand keeps it in an elevation, and with the other hand fires. *Firelock Mortars* are fixed in a stock, with a lock like a firelock; they swing between two arches of iron, with holes answering one another, by which the mortar is elevated. These stand upon a sole or plank of wood, and may be carried by one man from one place to another. There

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are more sorts of hand mortars, but Coehorn's new invention exceeds them all, so far as to deserve a particular description. They are made of hammered iron, of four inches diameter in the bore, ten inches and a half long, and nine inches in the chace, fixed upon a piece of oak twenty inches long, ten and a half broad, and betwixt three and four thick. They stand fixed at 45 degrees of elevation, and throw hand grenades, as all other hand mortars do. They are placed in the bottom of the trenches, at two yards distance from one another, having each a soldier to serve it, and an officer to every forty or fifty, who lays them to whatever elevation he thinks convenient, by raising or sinking the hind part of the bed. Three or four hundred of them are sometimes in service at once, in different parts of the trenches, 60, 70, or 80 in a place. Those in one place fire all at once, immediately after the batteries have done, and are answered from another part of the trench, which brings such a shower of hand grenades into the covert way, that those who defend it are thrown into unavoidable confusion.

Motion of a Bomb, or Ball, is the progress it makes in the air after it is delivered, and is of three sorts: the *violent Motion* is the first expulsion, when the powder has worked its effect upon the ball, or so far as the bomb or ball may be supposed to go in a right line; the *mixed Motion* is, when the weight of the ball begins to overcome the force which was given by the powder; and the *natural Motion* is, when the ball or bomb is falling.

In shooting with mortars, the following general rules should be always observed. 1st. To measure the distance of the object aimed at. 2d. That the bombs be of equal weight, otherwise the shots will vary. 3d. That the carriage be on an exact level, to prevent its leaping. 4th. That the powder with which the piece is charged, be always of the same strength and quantity. 5th. That the charge be always equally rammed down. 6th. That the wads be always of wood, tompions or oakum. 7th. That the fuses be fresh made the days on which they are to be used; and that they be of a composition proportionable to the range of the shot in the air, so that the bomb may break at the very moment of, or soon after its fall; which composition

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composition must be such as not to be extinguished though it fall in water, but continue burning till the bomb breaks. See the article *Bomb*.

Motion of an Army. The several marches and counter-marches it makes, or the changing of its posts, either for better ground, to force an enemy to battle, to avoid it, or the like.

Mouldings of a Gun or Mortar. All the eminent parts, as squares, or rounds, which serve generally for ornament, such as the breech mouldings and muzzle mouldings. The rings of a gun are likewise called mouldings.

Moulds for leaden bullets, are little iron pincers, each of whose branches terminates in an hemispherical concavity which when shut, form an entire sphere: in the lips or sides where the branches meet, is a little jet or hole through which the melted lead is conveyed.

Mound, a term used for a bank or rampart, or other fence, particularly that of earth.

Mounting, signifies going upon duty; thus, mounting a breach is running up to it; mounting the guard, is going upon guard; and mounting the trenches, is going upon duty in the trenches; but mounting a cannon, mortar &c. is the setting it on its carriage, or the raising its mouth.

Munition, the provisions with which a place is furnished in order for defence; or that which follows a camp for its subsistence. See *Ammunition*.

Musket, or Musquet. The most commodious and useful fire-arm used in the army, either in attacking or defending a post: it is easily managed, and is carried with small trouble, which makes its use the more common. Formerly two thirds of every company were musketeers, and the rest pikemen; but the pikes being laid aside in our army of late, and muskets brought in their stead, shews that though pikes are useful, yet muskets, with the addition of bayonets, are much more so, and can do better service. They carry a ball of 16 in the pound. The length of the line of defence is limited in fortification by the ordinary distance of a musket shot, which is about 120 fathoms (720 feet, or 240 yards) and almost all the military architecture is regulated by this rule for the length of the defence, as the effect of cannon gives a rule for the thickness of the ramparts and parapets.

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Musketeer, or Mousquetaire. A foot foldier, armed with a musket or firelock, sword, bayonet, &c. In France there are two companies, or rather troops, the grey and the black, called *Mousquetaires du Roy*, or the king's musketeers, composed all of gentlemen excellently well mounted, who serve either on foot or on horseback, and signalize themselves upon all desperate occasions, being there only for preferment. An instance of their bravery they gave in the late battle of Dettingen. The king himself is their captain, and the officer commanding each of them, is called captain-lieutenant; yet each of them commands as colonel both of horse and foot, and accordingly take place of all younger colonels of either. They are reckoned as gendarms, and march next to the Scotch gendarms.

Musketo. A kind of short thick musket, whose bore is the thirty-eighth part of its length: it carries five ounces of iron, or seven and a half of lead, with an equal quantity of powder, this is the shortest sort of blunderbusses. See the article *Blunderbuss*.

Muster. A narrow review of troops under arms, to see if they be compleat, and in good condition; that their arms and accoutrements be in good order; thereby to know the strength of an army. The general may order either muster or review, as often as he pleases.

Muster Master. For which see *Commissary General*.

Muster Rolls. The rolls or lists of the companies or troops, which are delivered to the commissary by the captains.

Muzzle of a Gun or Mortar. The extremity of the cylinder, where the powder and ball is put in.

Muzzle Mouldings. The ornament round the muzzle.

N

TO *Nail Cannon*, or as some call it, *To cloy*. To drive a large iron spike by main force into the touch-hole of a gun; or, for want of spikes, small flints or other stones. This renders the cannon useless, either stopping up the touch hole, or if the spike be taken out, leaving it so large that it cannot be fired, because it takes too much

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much vent there. The remedy is, to drill a new touch-hole. The most honourable thing the garrison of a place besieged can propose to itself in a sally, is to nail up the enemy's cannon, because it takes some time to repair.

Neck of a Gun. That part betwixt the muzzle mouldings and the cornish ring.

Neck of the Cascabel, is the part betwixt the breach mouldings and cascabel.

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OBLIQUE DEFENCE. That which is under too great an angle, as is generally the defence of a second flank, which can never be so good as a defence in front, nor is it approved by engineers.

Octagon. A figure of eight sides, or polygons, forming the same number of angles, and capable of being fortified with eight bastions.

Officer in the Army. In general a person having a command in the army. Those having commissions from the king or general, are called *commissioned officers*, which includes all from the general to an ensign. Such as have no commissions, but only warrants from their colonels, are called *warrant officers*, as quarter masters of horse, and surgeons. Those that have neither commissions nor warrants, are called *staff officers*, as sergeants, corporals, lanſepades, &c.

General Officers, are such as command a body of troops of several regiments, as the field marshal, captain general, lieutenant general, major general, brigadier general, quarter master general, and adjutant general.

Field Officers, are those who have a command over a whole regiment, as the colonel, lieutenant colonel, and major.

Subaltern Officers, are the lieutenants, cornets, and ensigns.

Open Flank. That part of the flank which is covered by the orillon. See the article *Flank*.

To Open Trenches, is the first breaking of ground by the besiegers, in order to carry on their approaches towards a place.

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a place. The difference between opening and carrying on the trenches, is, that the first is only the beginning of the trench, which is always turned towards the besiegers: it is begun by a small fosse, which the pioneers make in the night time on their knees, generally a musket shot from the place, or half a cannon shot, and sometimes without the reach of cannon ball; especially if there be no hollows or rising grounds to favour them, or if the garrison be strong, and their artillery be well served. This small fosse is afterwards enlarged by the next pioneers, which come behind them, who dig it deeper by degrees, till it is about four yards broad, and four or five feet deep, especially if they be near the place; to the end the earth which is taken out of it may be thrown before them to form a parapet, to cover them from the fire of the besieged: the place where the trenches are opened, is called the end of the trench.

Open. A word of command, as *Open your ranks backwards to such a distance*, is when the ranks falls back without changing aspect, observing their right hand man and their leaders. *Open your files from the centre*, is when they face outwards from the centre: if there be an odd file it stands, the rest take the distance commanded. *Open your files to the right or left.*

Order. A word of command, as *Order your firelock*, is the planting the but end of the piece against the middle of the outside of the right foot, with the lock outwards.

Order of Battle, is a disposition of the battalions and squadrons of an army in one or more lines, according to the nature of the ground, either to engage an army, or to be reviewed by the general.

Orders. Notice given every night by the general to the lieutenant-general of the day, who conveys them to the major general, and he to the brigade-major, who gives them to the adjutants, and they to the sergeants, that the army may know when to march; what detachments, &c. are to go abroad the next morning; when they are to forage or graze; when they are to muster or review, and many other things. The orders are generally given out in the evening at the head quarters, where all generals meet at that time. *Orders in general*, signify all that is commanded by a superior officer.

Ordnance,

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Ordnance. All sorts of guns, mortars, firelocks, carbines, pikols, &c. all sorts of arms, or stores, belonging either to offence or defence.

Master of the Ordnance. See *General of Artillery*.

Office of Ordnance. An office kept within the Tower of London, which superintends and disposes of all the arms, instruments and utensils of war, both by sea and land, in all the magazines, garrisons and forts in Great Britain.

The officers of the ordnance are, 1st. the master-general, from whom are derived all orders and dispatches relating to the same. 2d. The lieutenant-general, who receives orders from the master-general, and sees them duly executed; orders the firing of guns on days of rejoicing, and sees the train of artillery fitted out when ordered to the field. 3d. The surveyor general who has the inspection of the ordnance, stores, and provisions of war in the custody of the storekeepers: he allows all bills of debt, keeps a check on labourers, &c. 4th. The treasurer, through whose hands passes the money of the whole office, as well for payment of salaries as debentures: as also a clerk of the ordnance, and a clerk of the deliveries, for which see the articles *Clerk of the Ordnance*, &c.

Orgues. Thick long pieces of wood, pointed or shod with iron, clear one of another, hanging each by a particular rope or cord over the gateway of a strong place, perpendicular, to be let fall in case of an enemy. Their disposition is such, that they stop the passage of the gate, and are preferable to hersees or portcullises, because these may be either broke by a petard, or they may be stopped in their falling down by a wooden horse, or other contrivance. But a petard is useless against an orgue, for if it break one or two of the pieces, others immediately fall down, and fill up the vacancy; or if they stop one or two of the pieces from falling, it is no hindrance to the rest, for being all separate, they have no dependance on one another.

Orillon, or Blind. A mass of earth faced with stone, built on the shoulder of a casemated bastion, to cover the cannon of the retired flank, and hinder its being dismounted by the enemy's cannon. They are made sometimes round, and sometimes square. Some maintain the round to be best, because they are not so easily beat down by the cannon

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annon of the besiegers ; for the roundness hinders the ball very much from its effect. Others like the square orillons better, because they are of less charge, and can contain more men to fire directly on the face of the opposite bastion, than the round can do. Orillon is likewise called the shoulder and the epaulment.

Orteil, the same with *berme*. See the article *Berme*.

Orthographical Section, or *Profile*. Is that draught which shews the thickness, breadth, depth, and height of any work, as it would appear, if perpendicularly cut off from the highest to the lowest part of it. It does not represent the length of the work, which the plan does ; but when the plan does not shew the height and depth, but represents the breadth.

Oval. A plain figure bounded by its own circumference, within which no point can be taken, from which all right lines drawn to the circumference can be equal.

Out-works, which are likewise called *Advanced Works*, *Detached Works*, and *Exterior Works*. Works of several sorts, which cover the body of the place towards the campaign ; as ravelins, half moons, tenailles, horn works, queue d'arondes, envelopes, crown works, counter guards, lunettes, swallows tails, and the like. These serve not only to cover the place, but likewise to keep an enemy at distance, and to hinder his getting any advantage of hollows or rising grounds that may happen near the counterscarp of the place : for these cavities and eminences may serve for lodgments to the besiegers, and facilitate the carrying on their approaches, and raising their batteries against the town. It is a general rule, that if there be several *Out-Works*, one before another, to cover one another, and the same tenaille of a place, those that are nearest the place must gradually, one after another, command those that are farthest advanced out into the campaign ; that is, must have higher ramparts, that they may overlook and command upon the besiegers, when they have possessed themselves of the farthest. The gorges of them must be always plain, for fear if they had any parapet, it might serve the besiegers, when they are masters of it,

to cover themselves against the fire of the besieged; and therefore the gorges are only palisadoed, to prevent surprize.

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PALISADES. Long pieces of wood or stake planted generally before posts which might be taken by surprize, or where the access is very easy, to secure them both from a sudden and a regular attack. They are generally eight feet long, and six or seven inches square; the one end is pointed, and the other is let three feet perpendicularly into the ground: sometimes they are planted obliquely, pointing towards the enemy, that in case the besiegers should endeavour to pull them out with cords, the cords may slip off, having no hold. Palisades are planted on the berm, or foreland, at the foot of the bastions of places surrounded with a wet fosse, to prevent an escalade or surprize. They are likewise planted in the bottom of dry moats, especially if there are traverses made. Sometimes they are set in the gorges of half moons, and other out works. But above all, the parapet of the covert way must be well palisaded, either on the parapet or in the covert way. They are to stand so close, that the muzzle of a musket can but just get betwixt them. The method of planting them, is by digging a trench about a foot, or a foot and a half wide, and three feet deep, and after the palisades are set in as close to one another as before said, the trench is then filled with earth which is beat and set very hard about the palisades with rammers. Palisades are very useful, and a good defence in all sorts of fortifications, provided they be well planted and close. They are likewise useful in sieges, to plant on the outside of the fosses of the batteries, to prevent the besieged from surprizing the batteries in their sallies, and raising the cannon. Palisades are either pulled up by shaking them with ropes, cut down by the grenadiers, or beaten down.

P A R

eatened down with cannon, or burned down with small
scines pitched over.

Turning Palisades. An invention of Coehorne's, to
preserve the palisades of the parapet of the redans from
the besiegers shot. He orders them so, that as many of
them as stand in a rod's length, turn up and down like a
trap, with all the facility imaginable. They are a good
defence, because they are not in sight of the besiegers, but
lift when they bring on their attack, and yet are always
ready to do the proper service of palisades. They are like-
wise frugal, because they may be preserved in the maga-
zines, and need not be left on the parapet: besides there
may be square palisades kept ready to supply the place
if such as may be broke by the besiegers cannon.

Pans. The same as the oface of the bastion, which see.

Parade. The place where troops meet together to go
upon guard, or any other service. In a garrison, where
there are two or three, or more regiments, each has their
parading place appointed, where they are to meet upon
all occasions, especially upon any alarm. In a camp, all
companies, convoys, or detachments, that are to go abroad,
have a parading place appointed them at the head of some
regiment.

Pandours, or Croats. Infantry. Their habit is first a
bonnet, the hinder point of which falls down upon the
back like a sack: a large loose upper garment, fixed
tight to their bodies by a girdle, with great sleeves; and
breeches, which are also large, and reach down to
their ankles; instead of shoes they have a piece of leather
perhaps a felt, tyed about the foot with a cord. They
fire arms well, and are excellent marksmen: they
carry a fusil, and four pistols: they make use of great
swords, a cuttose, and another instrument of steel, made
like a rake, which they carry in their bonnet, and which
serves them for several uses, particularly to defend them-
selves when they have no other weapon at hand: they
wear chains about their necks, which they make use of
to secure their prisoners.

Parallel. Though this be properly a term in geometry,
being often used in fortification, it deserves to be ex-
plained. Parallel lines are those which are of an equal

P A R

distance from one another in every part of them, and so continue, though ever so far extended; so that they can never meet or draw nearer. Opposite sides of a square are parallel to one another. The ranks of a battalion are parallel, and so are the files among themselves. The counterscarp is drawn parallel to the face of its bastion, and generally the line of approaches is drawn parallel to the face of the place attacked, to prevent its being enfiladed or scoured in length.

Parallels at a siege, signify the trenches or lines made parallel to the defence of the place besieged. They are likewise called *Lines of Communication*. *Boyaus*.

Parapet. An elevation of earth, designed for covering the soldiers from the enemy's cannon or small arms, wherefore its thickness is from eighteen to twenty feet. It is six feet high on the inside, and four or five on the next the country. It is raised on the rampart, and has a talus above called the *superior talus*, and sometimes the *glacis parapet*, on which the soldiers lay their muskets to fire on the enemy. This pente or slope makes it easy for the musketeers to get into the ditch, or, at least, on the counterscarp. To fire on the glacis of the parapet, is called *firing in battery*. The exterior talus of the parapet, is the slope facing the country. The height of the parapet being six feet on the inside, it has a banquet or two for the soldiers which defend it, to mount upon, that they may discover the country the better, as likewise the fosse and counterscarp to fire as they find occasion.

Parapet of the Covert Way, or Coridor, is what covers that way from the sight of the enemy, which renders the most dangerous place for the besiegers, because of the neighbourhood of the faces, flanks and curtains of the place. It is the same with glacis, which signifies a whole mass of earth that serves to cover the coridor, goes sloping towards the country.

The name of *parapet* is given in general to any line which covers men from the enemy's fire; so there are parapet barrels, of gabions, and of bags filled with earth.

P A R

Park of the Artillery. A post in the camp, appointed the quarter-master-general in the rear of both lines of army, out of cannon shot of the enemy, and fortified to secure the magazines and ammunition; where to prevent accidents of fire, only pikemen do duty. Every attack at a siege has a park of artillery. The ammunition waggons in a park form the two or three first lines, and the battalions and tombrils the last. The whole is surrounded by ropes. The gunners and matrosses encamp on the front, and the rest of the train in the rear. Here are kept the arms and utensils necessary for a siege; as bombs, mortars, carcasses, hand grenades, powder, ball, &c. with all sorts of instruments for removing the earth, as spades, pick axes, bills, hoes, and wheel barrows, with many things more.

Park of Provisions, is the place where the sutlers pitch their tents, and sell provisions to the soldiers, which is in the rear of each regiment: but the chief of all is the park allotted at the head quarters for the sutlers, where there is still every thing to be had, and it is from thence that the most part that the other sutlers are furnished. But the place where the bread waggons are drawn up, and where the soldiers receive the ammunition bread, being the store of the army, is properly the park of provisions.

Parley. A conference with an enemy. Hence to beat the drum, or sound of trumpet, is to give a signal for holding such conference, by beat of drum, or sound of trumpet.

Parole. When a prisoner has leave to go any where upon promise of returning at a time appointed, if not exchanged.

Partisan. A good partizan is an able cunning soldier, well skilled in commanding a party, who knows the country and how to avoid ambushes, surprise the enemy, or obtain intelligence.

Partisan Party. A small body of infantry given to a partizan, to make an incursion upon the enemy, to lurk about their camp, to disturb their foragers, and to intercept their convoys.

Partuisan, or Pertuisan, is a weapon sometimes carried by lieutenants, not unlike a halbert.

P A V

Party. A small body of horse or foot, sent into the enemy's country to pillage or take prisoners, or to oblige the country to come under contribution, which is to pay a certain sum of money; to redeem themselves from plunder. Parties are often sent out by a general to view the way and roads, and to gain intelligence; to look for forage, or to amuse the enemy. Upon a march they are frequently sent upon the flanks of the army, to discover if the enemy is near, and to prevent the army's being surprised. The late king of France, to prevent robberies, ordered that all parties of enemies, under fifteen in number, that did not produce an order under a commanding officer's hand, if taken, should be sent to the gallies as robbers.

Party Bleu. A company of villains who used to infest the roads in the Netherlands; they belonged to neither army, but robbed both sides, without any regard to passes.

Pass, a strait, difficult, and narrow passage, which shuts up the entrance into a country.

The first care of the general of an army is to seize the passes of the country into which he would carry the war, to fortify them, and take care that they are well guarded.

Pas Parole. A command given at the head of an army, and thence communicated to the rear by passing it from mouth to mouth.

Pas de Sotris. See *Foreland*.

Pas-Volant, or Passe-Volant, in a military sense, the same with a faggot. See the article *Faggot*.

In France all *Pas-volants* are marked on the cheek with a fleur de lis.

Patee. A small work, or platform, like that they call a horse-shoe, not always regular, but for the most part oval, encompass'd with a parapet, without any other defence except only that fore right, and having nothing to flank it. They are commonly erected in marshy grounds to cover a gate of a town.

Patrouille, or Patroll. A round going about in the night, consisting generally of five or six men, (or of fewer if horse) commanded by a serjeant, that sets out from the *Corps de Garde*, to see what is done in the streets, and keep peace and quietness in the town.

Pavilion. An old term for a tent.

Pay.

P E T

Pay. The wages given to a soldier for his maintenance in his prince's service, and is greater or less, according to the custom of several countries.

Pay Master. He who is entrusted with money, and has the charge of paying the soldiers in each regiment. There is also a *Pay Master General* of the army.

Pedrero, or Pattarero. A small sort of cannon, mostly used on the quarter deck of ships, to fire stones or broken shells upon boarding. Some of them are made to open at the breech, to take in the charge that way.

Platoon. Vide *Platoon*.

Pentagon. A figure of five sides, and as many angles, capable of being fortified with the same number of bastions.

Perpendicular. A right line falling from, or raising it upon another, upright, and making the angles on both sides equal.

Perdue, denotes the forlorn hope; and to lie *perdue*, to lie flat and closely in wait.

Petard. An engine of metal, almost in the shape of a mortar-loaf, about seven or eight inches deep, and about six inches over at the mouth, and at the bottom one and a half. It is charged with fine powder well beaten, and used for breaking open gates, draw bridges, batteries, and barriers. The thickness of metal at the mouth is half an inch, and that of the breech considerably more. Its charge of powder 5 lb. or thereabouts, and weighs about 55 or 60. *Pickets* are much larger and bigger petards, and there are likewise smaller: the first employed in breaking open strong reinforced gates, the last such as can make but small resistance. When a petard is loaded with powder, it is put upon a madrier, a strong piece of plank, covered with a plate of iron on the outside, which covers the overture, being hollowed out for the purpose; the place where they join is done up with wax, pitch, and rosin, to enforce the effect. When being done, it is carried to the place designed to be broken up, where joining the plank exactly to the gate, the petard is stayed behind, and fired by a fusée, that the garrison may have time to get off. They are sometimes

P I E

used in countermines, to break through into the enemy's galleries, to disappoint their mines.

The invention of perards is ascribed to the French hugonots, in 1579, who with them took Cahors, as d'Aubigné tells us,

Petardeer. He who loads, fixes, and fires the petard, who ought to be a man of courage, for he is often exposed.

Pickaxes. Used in digging ground when too hard for the spade; but too common to require more to be said of them, though a tool very necessary in an army.

Picket, or Piquet Guard. Vide *Guard*.

Picket. A small pointed staff shod with iron, which serves to mark out the angles of a fortification, and the principal parts, when the engineer is tracing a plan upon the ground with a line. There are likewise small pointed stakes, which serve to drive through fascines or gazons, to keep them fast when the earth is bad, or the work raised in haste.

Pickets, are moreover the stake which the troopers drive before their tents, about two yards distance. From one to another of these pickets is stretched a rope, called the *Picket Rope*, to which they tie their horses.

A *Picket*, is likewise a stakes of nine or ten feet high, fixed in the ground, and standing upright: round the foot of it are small sticks with sharp points; this is at the head of each regiment of horse, to punish crimes that do not deserve death, by putting the criminal with his foot on one of these small pointed sticks, and tying up his hand to a ring above his head, so that he neither stands nor hangs, nor can he shift his foot, nor change feet to ease himself.

Picquering, Pickering, or Pickerooning. A flying war or skirmish made by soldiers detached from two armies for pillage, or before a main battle begins.

Piece of Ordnance, includes all sorts of great guns and mortars. Battering pieces are the large guns used at sieges for making the breaches, such as the 24 pounder and the culverin; the one carrying 24, and the other 18lb. ball. Field pieces are 12 pounds, demi culverins, 6 pounders, sakers, minions, and 3 pounders, which march with the army, and encamp always behind the second line, but in

day

day of battle are in the front, A soldier's firelock is like.
 wife called his piece.

Pike. A weapon for a foot soldier, made of a long staff, small and round, and armed at the end with a sharp iron spear. Formerly in a company of foot, two thirds were musketeers, and the others pikemen. The pikes were fourteen or sixteen feet long. When a battalion was formed to engage the horse in open field, the pikes were ordered, that they might face and charge every way, to cover not only the musketeers, but the colours drums and baggage. Bayonets, or short swords, made to fix to the muzzle of muskets, serve now instead of pikes.

Half Pike. The weapon carried by an officer of foot, and differing from a pike, because it is but eight or nine feet long, and the spear is smaller and narrower.

Pile, or Pyramid of Bombs or Balls. The way of disposing them in magazines, or the piling them up regularly in the courts of the arsenal, as may be seen at Woolwich. Suppose 385 bombs to be made in a pile, the first must be laid in a square of ten on each side, which makes 100 the first bed, and let half a foot in the ground; to the second, the great weight which comes above them may not force them to slide out, for then the whole pile falls: the second bed will be eighty one, which is nine of a side, and must be laid on the vacant space which happens between every four bombs of the first bed; and the third bed being eight of a side, is sixty four, laid the same way, and so to the top of the pile; which will terminate in one bomb making a pyramid, whose basis is a square.

Pintle, among gunners, an iron which serves to keep the gun from recoiling.

Pioneers. Such as are commanded in from the country, march along with an army for mending the ways, for working on intrenchments and fortifications, and for making approaches; but the soldiers are most generally employed in all these things.

Pistol. The smallest piece of fire arms, borne at the middle bow, on the girdle, and in the pockets.

Pivot. A piece of iron or brass rounded at the point, so that it may turn easily round in a piece, or socket of iron, or brass, hollowed to receive it.

P L A

Place. A general name for all kinds of fortresses where a party may defend themselves: thus, 1. A strong or fortified place, is one flanked, and covered with bastions. 2. A regular place, one whose angles, sides, bastions, and other parts, are equal; and this is usually denominated from the number of its angles, as a pentagon, hexagon, &c. 3. Irregular place, is one whose sides and angles are unequal. 4. Place of arms, is a strong city or town, pitched upon as a chief magazine of an army; or, in a city or garrison, it is a large open spot of ground, usually near the centre of the place where the grand guard is commonly kept, and the garrison holds its rendezvous at reviews: and in cases of alarm, to receive orders from the governor. 5. Place of arms of an attack, in a siege, is a spacious place covered from the enemy by a parapet or epaulement, where the soldiers are posted ready to sustain those at work in the trenches, against the soldiers of the garrison. 6. Place of arms particular, in a garrison, a place near every bastion, where the soldiers sent from the grand place to the quarters assigned them, relieve those that are either upon the guard or in fight. 7. Place of arms without, is a place allowed to the covert-way, for the planting of cannon, to oblige those who advance in their approaches to retire. 8. Place of arms in a camp, a large place at the head of the camp, for the army to be ranged in and drawn up in battalia. There is also a place for each particular body, troop, or company, to assemble in. See the articles *Camp, Troop, &c.*

Plan, Ground Plot, or Ichnography in Fortification. The representation of the first or fundamental tract of a work, shewing the length of its lines, the quantity of its angles, the breadth of the ditches, thickness of the rampart and parapets, and the distance of one part from another: so that a plan represents a work, such as it would appear, if it were cut equal with the level of the horizon, or cut off at the foundation. But it marks neither the heights nor depths of the several parts of the works, which is properly profile, and which expresses only the heights, breadths, and depths, without taking notice of the lengths. As ar-

chitect,

chitects, before they lay the foundation of their edifice, make their design on paper, by which means they find out their faults ; so an engineer, before tracing his works on the ground, should make plans of his designs upon paper, to the end he may do nothing without serious consideration. Plans are very useful for generals or governors, in either attacking or defending a place, in chusing a camp, determining attacks, conducting the approaches, or in examining the strength or weakness of a place ; especially such plans as represent a place with the country about it, shewing the rivers, fountains, marshes, ditches, valleys, woods, houses, churches, and other particulars, which happen about a place.

Planks, or Madriers. Pieces of oak very thick and broad. See *Madrier*.

Plates. The *Prise Plates*, are two plates of iron on the cheeks of a gun carriage from the cape square to the centre, through which the prise bolts go, and on which the hand spike rests, when it poises up the breech of the piece. *Breast Plates* are the two plates on the face of the carriage, one on each cheek. *Train Plates*, are the two plates on the cheeks, at the train of the carriage. *Dulidge Plates*, are the six plates on the wheel of a gun carriage, when the fellows are joined together, and serve to strengthen the dulidges.

Platform, in general, is an elevation of earth on which cannon is placed, such as the moants on the middle of the curtains : but it is likewise a sort of bastion constructed on a re-entring angle, when its two faces make a right line. *Platform of a Battery*, is a floor of boards nailed down upon sleepers, sloping a little towards the embrasure, for the guns to run upon, and to keep the wheels from sinking into the ground. The slope serves to diminish the reverse of the piece, and for the more easy running her up to the embrasure. Each gun has generally a platform for herself. See *Battery*.

All practitioners are agreed, that no shot can be depended on, unless the piece can be placed on a solid platform ; for if the platform shakes with the first impulse of the powder, the piece must likewise shake, which will alter its direction and render the shot uncertain.

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P O N

Platoon, or rather *Peloton*. A small square of musketeers such as is used to be drawn out of a battalion of foot, and placed betw en the squadrons of horse to sustain them : or in ambuscades, straits, and defiles, where there is not room for whole battalions or regiments, platoons are also used, when they form the hollow square to strengthen the angles. The grenadiers are generally thus posted. *Peloton* is the French word, only the vulgar corruption has brought it to be pronounced platoon.

Poniard, a sort of short sword used in Spain and Italy.

Point-blank of a Gun. The distance she throws a ball in a supposed direct line; the gun being laid at no elevation, but levelled parallel to the horizon. I say, supposed direct line, because it is certain, and easily proved, that a ball cannot fly any part of its range in a right line; but the swifter it flies, the nearer it approaches to a right line; or the less crooked its range. The point-blank of any common large cannon is not above 180 paces.

Pointing. The levelling a cannon, or mortar, so as to play against any certain point.

Polygon. A figure of more than four sides, and is either regular or irregular, exterior or interior. Also the figure or spot of ground that is to be, or is fortified.

Polygon regular. A figure whose angles and sides are equal. It has an angle of the centre, and an angle of the polygon. The centre of a regular polygon is the centre of a circle, which circumscribes the polygon, that is, whose circumference passes through all the angles of the figure.

Irregular Polygon. Whose sides and angles are unequal.

Exterior Polygon. The lines drawn touching the points of the flank angles, when a place is fortified inwards; or the out lines of all the works, drawn from one outmost angle to another quite about.

Interior Polygon. To fortify outwards, which makes the angles of the polygon to be the angles of the gorge, so that the whole ballion is without the polygon. The main body of the work, or town, excluding the outworks.

Pont de Jongc. See *Bridge*.

Ponton. A boat of latten, or tin, about eight yards long and two broad. The form of it is a long square having a large ring at each corner. It is laid upon a carriage

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riage when the army marches, and drawn by five horses. Each boat has an anchor and cable, and baulks and chests belonging to it. The baulks are about five or six inches square, and about 7 yards long. The chests, or boards joined together by wooden bars, about a yard broad, and four yards long. When there is occasion for using these boats, they are slipped into the water, and placed about two yards asunder, each fastened with an anchor, having besides a strong rope, which runs through the rings, and is fastened on each side of the river to a tree, or a stake made very fast in the ground. The baulks are laid cross the boats, at some distance from one another, and the chests upon them joined close; which makes a bridge in a very short time for horse, foot, or artillery to march over.

Pont Volant. A flying bridge, a kind of bridge used in sieges, made of two bridges laid over one another, and so contrived by means of cords and pullies, placed along the sides of the under bridge, that the upper may be pushed forward, till it join the place where it is designed to be fixed; the whole length of both not to be above five fathoms. See *Bridge*.

Port Fire. A composition of meal powder, sulphur, and saltpetre, rammed into a case of paper, but not very hard. It is about nine or ten inches long, and is used to fire guns or mortars instead of match; but then it is cut into pieces of about an inch long, and put in a lintstock, or cleft stick.

Post. Any spot of ground, whether fortified or not, which is capable of lodging soldiers. So we say, 'To gain a post with sword in hand,' 'To relieve the posts,' that is the guards of the posts.

Post of Honour. The advance guard is a post of honour: the right of the two lines is the post of honour, and is always given to the eldest regiments: the left is the next post, and is given to the next eldest, and so on; the centre of the lines being the post the least honourable, and is given to the youngest regiments.

Advanced Post. A spot of ground seized by a party to secure their front, and cover the posts behind them.

Priming, or prime of a gun, is the gunpowder put into the

P O S

the pan or touch-hole of a piece, to give it fire thereby. and this is the last thing done in charging. For pieces of ordnance they have a pointed iron rod, to pierce the cartridge thro' the touch hole, called primer or priming-iron.

Pouch. A grenadiers pouch, is a square case or bag of leather, with a flap over it, hanging in a strap of about two inches broad, over the left shoulder, in which he carries the grenades.

Powder. A composition of sulphur, saltpetre, and charcoal dust. The sulphur and charcoal take fire, and the saltpetre makes the crack.

Pounder. A 24 pounder is a gun carrying a ball 24 lb. Its diameter is six inches, the length is from ten to twelve feet. And so of the rest. See *Cannon* and *Bullet*.

Priest's Cap. Vide *Bonnet a Prestre*.

Provost Marshal, is an officer appointed to seize and secure deserters, and all other criminals. He is to hinder soldiers from pillaging, to indict offenders, and see the sentence passed on them executed. He also regulates the weights and measures and the price of provisions, &c. in the army. For the discharge of his office he has a lieutenant, a clerk, and a troop of marshal-men on horseback, as also an executioner.

Pyrotechny, is the doctrine of artificial fireworks and fire-arms, teaching both the structure and use of those used in war, gunpowder, cannons, bombs, granadoes, carcasses, mines, fuses, &c. and those for amusement, as rockets, stars, serpents, &c.

Proclamation. Vide *Ban*.

Provisions. Are all sorts of food for the army.

Profile. Engineers, to represent the heights, depths, and thickness of a work, with the depth and breadth of the fosses, &c. do it by profile or orthography, which supposes the work to be cut perpendicularly from top to bottom. See *Orthographical Section*, Plate II.

Postern. A small gate commonly made in the angle of the flank of a bastion, that of the curtain, or near the orillon, descending into the ditch: whereby the garrison can march in and out unperceived by the enemy, to relieve the works, make sallies, &c.

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QUADRANT, or *Quarter of a Circle*. An instrument of wood, used by gunners, in pointing guns to an object, and by bombardiers in elevating their mortars: it is made of two pieces of wood, or brass, joined at eight angles, one of which is longer than the other, that it may enter the muzzle of the piece. They are joined by a quarter of a circle, which is divided into ninety degrees, the centre of which is where the two pieces join, from whence there hangs a thread with a plummet, which marks the different elevations of pieces, and the greatness of the angles. The way of using it, is by putting the longest side into the muzzle of the piece; when the plummet falls perpendicularly, and marks the angle on the quadrant. When the gun or mortar is elevated to the degree desired, it is kept there by coins of wood put under the breech of a gun, or betwixt the bracket-bolts of a mortar.

To Quadrant, or Square a Piece. Is to see whether it duly placed, and well poised, on the carriages and wheels.

Quarter. Signifies the sparing of mens lives, and giving good treatment to enemies vanquished. So we say, 'the conquerors offered good quarters,' 'the enemy asked quarter,' 'we gave no quarter.'

A Quarter. Signifies not only the ground a body of men incamps on, but the troops themselves. Therefore we say, 'to beat up the enemy's quarters,' 'Such a quarter is well fortified.'

Quarter of an Assembly, The place where troops meet to march in a body, and is a place of rendezvous.

Quarter of a Siege. The encampment upon one of the principal passages round about a place besieged, to prevent relief and convoys; when it is commanded by the general, it is called the head quarters of the army: when the camp is marked out about a place besieged, then the quarters are said to be disposed: when great detachments are made

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made from a quarter for convoys, &c. such a quarter is said to be weakened.

The Head Quarters, where the general of an army has his quarters, is generally near the centre of the army. The quarters of the generals of horse, are in the villages that happen between the right and left wings. The generals of foot are often in the same village with the general in chief.

Quarter entrenched. A place fortified with a ditch and parapet, to secure a body of troops.

Winter Quarters, Sometimes is taken for the interval of time between two campaigns; but more generally for the place or places where troops are lodged during the winter. So we say, 'The army is marching into winter quarters,' 'The winter quarters are settled,' 'The winter quarters will be but short.'

Quarters of Refreshment. The place or places where troops that have been much harrassed are put in to recover themselves, during some time of the summer, or season for the campaign. This is often done in hot countries during the violent heats.

Quarter Master. An officer whose principal business is to look after the quarters of the soldiers. There is a quarter master general of the army. Every regiment of foot has a quarter master, and every troop of horse one.

Quarter Master of Horse. A warrant officer appointed by the colonel. He takes up the ground for the troop, and divides it, in allotting so much for each tent. He receives the orders, keeps a list of the troop, visits the stables, and takes care of the arms. He marches in the rear of the troop, but in camp his tent is pitched in the front. In winter quarters he receives and distributes the forage of the troop.

Quarter Master of Foot. An officer who takes care of encamping the regiment. He attends the quarter master general upon a march, to know where the ground is for the regiment, which he divides among the companies.

Quarter Master General. A considerable officer in an army, who ought to be a man of great judgment and experience, and to understand geography; for since his province is to mark the marches and encampments of an army,

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army, he should know the country perfectly well, all the rivers, plains, marshes, woods, mountains, passages, defiles, &c. even to the smallest brook. The evening before a march, he receives the orders and route from the general, and appoints a place for the quarter masters of foot and horse to meet him next morning, with whom he marches to the next camp, where being come, and having viewed the ground, he marks out to the quarter masters the ground allowed each regiment for their camp. He chuses the head quarters, and appoints the villages for the general officers of the army, where they shall quarter. He appoints a proper place for the encampment of the train of artillery. He carries the army a foraging, and plants the covering party for their security, at all the passes round them, and assists in distributing the winter quarters to the army.

Quarter Wheeling, or Quarter of Conversion, is the motion by which the front of a body of men is turned round to where the flank was, by taking a quarter of a circle. If it be done to the right, the man in the right hand angle keeps his ground and faces about, while the rest wheel; if to the left, the left hand man keeps his place.

Queue d'Yronde, or Swallow's Tail. A detached, or outwork, whose sides open towards the head, or campaign, and draw closer or narrower towards the gorge. There are single and double tenailles, and horn works, called by this name of *Queues d'Yronde, or Swallows Tails*, for this sole reason, because their sides, instead of being parallel, open towards the head, and grow narrow at the gorge. When these works are cast up before the front of a place, they have this fault, that they do not sufficiently cover the flanks of the opposite bastions; but, besides that engineers sometimes must work according to the ground and situation, they have this advantage, that they are extraordinary well flanked by the place, which discovers all the length of their sides the better. See *Tenaille*.

Quit your Arms. A word of command in the foot, when they lay down their arms, at which they stand up, till they are ordered to the right about, when they march clear off their arms and disperse: but upon the beat of drum

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drum they run to their arms with a huzza, having their swords drawn, and the point upward.

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RABANET. The smallest piece of cannon but one, between a falconet and a base, being one inch and four eighths diameter in the bore, five feet six inches long, 300lb. weight, takes a charge of six ounces of powder, and carries a shot one inch and three eighths diameter, and eight ounces weight. The point blank shot of the piece is 70 paces.

To Raise a Siege. To give over the attack of a place, and to quit the works thrown up against it, and the posts taken about it. If there be no cause to fear a sally from the place, then the siege may be raised in the day time, by sending away first the sick and wounded, the baggage, the sutlers, broken cannon and mortars, and if possible, all the instruments which have been used in the siege. The artillery and ammunition may follow, and a strong rear guard must face the besiegers, in case they should offer to charge the rear. But if there be any fear of an enemy in front, this order must be altered according to the prudence of the general, and as the nature of the country will allow.

To Raise a Plan of a Fortrefs. The measuring with cords, and geometrical instruments, the length of the lines, and the capacity of the angles, that by knowing the length, breadth, and thickness of all the different parts of a fortification, it may be represented in small upon paper, so as to know the advantages and disadvantages of it.

Rallying, in war, reassembling or calling together troops broken and put to flight.

Rammer. A rod used in charging of a gun, to drive home the powder, as also the shot and the wad, which keeps the shot from rolling out. The rammer of a great gun. It has a round piece of wood at the end, and the
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other is usually rolled in a piece of sheep-skin, fitted to the bore of the piece, and is used to clear her after she has been discharged, which is called sponging the piece.

Rampart. Some will have it *Rampire*, but improperly. The great massy bank of earth raised about a place to resist the enemy's great shot, and cover the buildings. On it is raised a parapet towards the campaign. It is not to be above three fathom high, and ten or twelve in thickness, unless more earth be taken out of the ditch than can be otherwise bestowed. The rampart of half moons is the better for being low, that the muskets of the defendants may the better reach the bottom of the ditch; but it must be so high as not to be commanded by the *Covert Way*. A rampart ought to be sloped on both sides; that is, the mass of earth which composes the rampart, ought to be larger at bottom than at top, more or less, according to the nature of the earth: it ought to be broad enough to allow the marching of waggons and cannon, besides the parapet which is raised on it. As the earth which makes the rampart, is taken from the outside of it, because then the rampart and foss are made at the same time, it follows, that their proportions depend on one another; for since the rampart is made of a certain bigness, the foss must be dug deep enough to afford earth for the rampart, the parapet, and the esplanade.

Upon the rampart foldiers continually keep guard, and pieces of artillery are planted there for the defence of the place.

Rendezvous. The place where troops are to assemble. See *Rendezvous*.

Random Shot, is a shot made when the muzzle of a gun is raised above the horizontal line, and is not designed to shoot directly, or point blank. The utmost random of any piece is about ten times as far as the bullet will go point blank. The bullet will go farthest when the piece is mounted to about 45° above the level range. See *Gunnery*.

Ranforce Ring of a Gun. That which is next before the touch-hole, between it and the trunnions. See *Reinforced*.

Range. The path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges. If

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If the piece lie in a line parallel to the horizon, it is called the right or level range: if it be mounted to 45° it is said to have the utmost range, all others between 00 and 45° are called the intermediate ranges.

Ranging. Disposing the troops in the order proper for an engagement, or for marching.

Rank. The order or strait line made by the soldiers of a battalion or squadron, drawn up side by side. This order was established for the marches, and for regulating the different bodies of troops and officers which compose an army or a battalion.

Doubling of the Ranks, is the putting of two ranks into one.

To close the ranks, is to bring the men nearer: and to open them, is to set them farther apart.

Rapier, formerly signified a long old fashioned broad sword, such as those worn by the common soldiers: but it now denotes a small sword, as contradistinguished from a back sword.

Rasant, or Razant. Razant flank, or line, is that part of the curtain or flank whence the shot exploded rase or glance along the surface of the opposite bastion.

Ration. A portion of ammunition, bread, drink, and forage, distributed to each soldier in the army for his daily subsistence, &c. The horse have rations of hay and oats when they cannot go out to forage. The rations of bread are regulated by weight. The ordinary ration of a foot soldier is a pound and a half of bread per day. The officers have several rations according to their quality, and the number of attendants that they are obliged to keep. When the ration is augmented, on occasions of rejoicing, it is called a double ration.

Ravelins. Works raised on the counterscarp before the curtain of a place, and which serve to cover the gates of a town and the bridges. They consist of two faces forming a salient angle, and are defended by the faces of the neighbouring bastions. The half moons, which cover the points of the bastions, have their defences from the Ravelins. They are the most in use of all outworks, and are by the soldiers called half moons. They ought to be lower than the works of the place, that they may be under

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der the fire of the besieged, in case the enemy should endeavour to lodge themselves there. Their parapets, as those of all outworks, ought to be cannon proof; that is to say, about 18 foot thick. Their ramparts ought to be the half or third of one of the flanks of the place, and the breadth of their moats half the breadth of the moat of the place.

Razant. Line of defence *Razant.* Vide *Line.*

Rear. In general is the hindmost part of a battalion or army, or the ground behind it.

Rear, or Rear Guard. The last of the three lines of an army drawn up in battalia, whereof the first is the van, or van guard, the second the main body, and the last the rear guard, or, by another name, the corps de reserve, or body of reserve. The old grand guards of the camp, are always the rear guard of the army, and are to see that every thing comes safe up to the new camp.

Rear Half Files. The three hindmost ranks of the battalion, when it is drawn up six deep.

Rear Line of an Army encamped, or second Line, is always 4 or 500 yards distant from the first line, which is likewise called the front line. These two lines run parallel, and have sometimes a third, which is called a reserve.

Rear Rank, is the last rank of a battalion, when drawn up.

Re-charge. A second time of charging or loading any fire arms. The re-charge should never be so deep as the first charge, lest the piece, being over-heated, should burst.

Re-connoitre, to view and examine the state and situation of a place or an army.

Recoil of Cannon. The motion or run it takes backwards when fired, caused by the force of the fire, which, when the piece is discharged, seeking every way to fly out, drives the gun back, and the powder and ball forwards. Guns whose vents are a little forwards in the chace, usually recoil most. A cannon generally recoils ten or twelve feet, to lessen which, the platform of the batteries is commonly made to incline, or stoop a little towards the embrasures.

Recruits. New men raised to supply the places of such as have lost their lives in the service, or are rendered un-serviceable

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serviceable by age or wounds. Re-cruit horses, are the horses bought up for completing the regiments of horse or dragoon every year.

Rectangle. See *Angle*.

Redans, or Indented Works, are lines or faces that form sallying and re-entering angles flanking one another, and are generally used on the sides of a river, which runs through a garrison town. They were used before bastions were, and are by some thought preferable to them. The parapet of the covert way is generally carried on in this manner.

Redoubt. A small square fort, to serve for a detached *Corps de Garde*. They are used to secure the lines of circumvallation and contravallation, and the approaches. They are also made sometimes upon every traverse of the trenches, to defend the workmen against the sallies of the besieged. They are often used before strong towns, at musket shot distance, and cover the sallies of the garrison. These *Redoubts* are sometimes greater, and sometimes less; but their parapet, not being to resist cannon, is only eight or nine feet thick, with two or three footbanks, and the ditch about the same breadth and depth. The length of their sides may be from ten to twenty fathom. They are likewise called places of arms.

Reduce a Place. To oblige the governor to surrender it to the besiegers by capitulation.

Reduit, Castle, or Don-jon. A place more particularly entrenched, and separated from the rest by a foss. There is generally in each of them a high tower, from whence the country round the place may be discovered.

Reform. *To Reform,* is to reduce a body of men, by either disbanding the whole, or only breaking a part, and retaining the rest; or sometimes by incorporating them into other regiments.

Reformed Officer. One whose troops or company is broke, and he continued in whole or half pay, doing duty in the regiment. He preserves his right of seniority, and continues in the way of preferment.

Regiment. A body of several troops of horse, or companies of foot, and commanded by a colonel, lieutenant colonel, and major. Independent companies belong to

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no regiment. The number of troops, or companies, that are to form a regiment, has never been ascertained, no more than the number of men that are to form a troop or company. For there are regiments of horse of 300 men, and some in *Germany* of 2000. So there are regiments of foot of 12 or 13 companies, which may make 7 or 800 men, and the regiment of *Picardy* in *France* consists of 120 companies, which at 50 in a company, amount to 6000 men. In *England* our *Regiments* are generally from 10 to 13 companies, one of which is always grenadiers. *Regiments* of horse are most commonly six troops, but some of them nine. *Dragoon Regiments* are generally in time of war eight troops, and in time of peace but six. Each *Regiment* has a chaplain, and a surgeon.

Regular Attacks. Such as are made in form, that is, by *Regular Approaches*.

Reinforced Ring of a Gun. That next the *Trunions*, between them and the vent. The reinforced part of a gun, is from the *Base Ring* to the *Reinforced Ring*, being much thicker of metal than any other part of the piece, because of the force of the powder.

Reinforcement to an Army. An addition of fresh troops to strengthen an army, and to enable them to go on with an enterprize.

Relais. See *Foreland*.

Relieve. To relieve *Guard*, is to put fresh men upon the guard. To relieve the *Trenches*, is to relieve the guard of the trenches, by sending off those who have been there upon duty before.

Remount. To remount the *Cavalry*, or *Dragoons*, is to furnish them with horses in the room of those which have been either killed or disabled.

Rencounter. An engagement of two little bodies or parties of forces; in which sense it stands in opposition to a pitched battle. See the article *Battle*.

Reserve, or Corps de Reserve. A body of troops sometimes drawn out of the army, and encamped by themselves in a line behind the other two Lines. See *Camp*, *Line of Battle*, *Rear Guard*.

Rendezvous.

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Rendezvous. A place appointed by the general, where all the troops, which compose an army, are to assemble at a day prefixed.

Reprisals. A right which princes claim of taking from their enemies, any thing equivalent to what they unjustly detain from them.

Retirade. A trench with a parapet. But *Retirade*, or *Coupure*, is most ordinarily taken for a retrenchment formed by the two faces of a re-entering angle in the body of a place, after the first defence is ruined, and the besieged are obliged to abandon the head of the work, without quitting it entirely: therefore, when some are making *bat* to the enemy, others ought to be busy in making the *Retirade*, which is only a simple barricade or retrenchment thrown up in haste, with a sort of fofs before. It depends upon the knowledge of the engineer to direct, and the honour of the officers and soldiers to work at such a time, since they do it for the defence of their liberty; and no officer ought to think it below him to carry fascines, gabions, barrels, or to throw up the earth to cover himself. The *Retirade* ought to be raised as high as possible; and some forneaux or fougades made under it, to blow up the enemies lodgments.

Retreat, or Tat-too. A beat of the drum in the evening, at the firing of a piece, called the *warning piece*, at which the drum major, with all the drums of the battalion, except such as are upon duty, beat round the regiment: the drums of the quarter guards, of the general's guard, and all other small guards, do likewise beat, the trumpets at the same time sounding at the head of their respective troops. This is to warn the soldiers to forbear firing, and the centries to challenge till break of day, that the reveille is beat. The *Retreat* is likewise called *Setting the Watch*.

Retrenchment. Any work raised to cover a post, and fortify it against an enemy, such as fascines loaded with earth, gabions, barrels of earth, sand bags, and generally all things that can cover the men, and stop the enemy. But it is more particularly applicable to a fofs bordered with a parapet; and a post fortified thus, is called a *Post retrenched*,

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retrenched, or strong Post. *Retrenchments* are either general or particular.

General Retrenchments, are new fortifications made in a place besieged, to cover the defendants, when the enemy become masters of a lodgment on the fortification, that they may be in a condition of disputing the ground inch by inch, and of putting a stop to the enemy's progress, in expectation of relief. As, if the besieged attack a tenaille of the place which they judge the weakest, either by its being ill flanked, or being commanded by some neighbouring ground; then the besiegers make a great *Retrenchment*, inclosing all that part which they judge in most danger. These ought to be fortified with bastions and demi bastions, with a good foss, and should be higher than the works of the place, that they may command the old works, and give the besiegers great trouble in covering themselves; they ought likewise to be countermined.

Particular Retrenchments, are such as are made in the bastions, when the enemy are masters of the breach. They can never be made but in full bastions, for in empty or hollow bastions there can be made only *Retirades*. These *particular Retrenchments* are made several ways, according to the time they have to cover themselves: sometimes they are made before-hand, which is certainly the best; and a *Retrenchment* made before-hand requires no more men for its defence, than if it were not made, because they never defend it till the principal work be lost. The parapets of such *Retrenchments* ought to be 5 or 6 feet thick, and 5 feet high, with a large deep foss, from whence ought to run out small fougades and countermines.

Returns of a Mine. The turnings and windings of the gallery. See *Gallery* and *Mine*.

Returns of the Trench. The several bendings and oblique lines of the trenches, drawn in some measure parallel to the sides of the place attacked, to prevent being enfiladed, or having the enemy's shot scour along the length of the line. These returns make a great distance between the tail and the head of the trenches, which are but at a small distance going the straight way. When the head is attacked by any ally, the volunteers and braves among the besiegers leap

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over the line, and run out of shelter to repulse the fallies, and cut off the enemy's retreat.

Reveille. A beat of the drum about break of day, to advertise the army that it is day-light, and that the enemies forbear challenging.

Reverse, signifies on the back, or behind. So we say, 'reverse view,' 'a reverse commanding ground,' 'a reverse battery, &c.'

Review. The drawing out all, or part of the army in line of battle, to be viewed by the general in chief, or other great officer, that he may know the condition of the troops, see that they are compleat, and be a witness of the expertness with which they perform their evolutions and other exercises.

Rhinland Rod. A measure of two fathom, or 12 feet, used by the Dutch engineers.

Rhomb, or Lozange. A square figure that has the four sides equal, but not the angles, whereof two are obtuse, and two acute. It is what we vulgarly call *Diamond-cut*, like the glass of old windows.

Rhomboid. A four sided figure, whose angles and opposite sides are equal, but all its four sides are not equal.

Rideau. A small rising ground or eminence, commanding a plain, which is sometimes near parallel to the works of a place. It is a great disadvantage to have *Rideaus* near a fortification, especially when they shoot from far, and terminate on the counterscarp; for they not only command the place, but likewise facilitate the enemy's approaches. It is properly so called, because *Rideau* in French, is a curtain drawn by nature to hide men from the town.

Rideau, is likewise a trench, covered with earth, in form of a parapet to cover the soldiers.

Roll, Muster Roll. A scroll of parchment, which each captain gives the muster master, on which are writ the names of the soldiers of his company.

To Roll in Duty, is when officers of the same rank take their turns upon duty, as captains with captains, and subalterns with subalterns, and command according to the seniority of their commissions.

Roller

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Rollers. Round pieces of wood of about 9 inches diameter, and four feet long, which serve in moving mortars from one place to another, when it is near, by raising the fore part of the bed so high, that one of these *Rollers* may be laid under it; then pushing the bed forward, and laying another in its way, and another before that, and so on: thus the mortar is with little trouble brought to another place.

Round. A night watch commanded by an officer, who goes round the rampart of a garrison, to listen if any thing be stirring without the works, and to see that the centries be diligent upon their duty, and that every thing be in order. In strict garrisons, the *Rounds* go every quarter of an hour, that the rampart may still be furnished. The centries ought to challenge at a distance, and are to rest their arms as the *Round* passes, letting no man come near them. When the *Round* is near the *Corps de Garde*, the centry calls aloud, *Who comes there?* When it is answered, *The Round*; he says, *Stand*, and calls for the corporal of the guard, who, drawing his sword, calls, *Who comes there?* and is answered, *The Round*. Then, *Let him who has the word advance*. The corporal receives the word with his sword drawn, and pointed at the heart of him who gives it. When the major goes the *Round*, the officers of the guard receive him with two musqueteers, and give him the word only once, which is when he goes his *Round Major*. When the governor goes his *Round*, the officers draw out the guard without arms, and send four musqueteers to receive him at ten paces distance, and give him the word as often as he pleases to demand it. All other rounds without exception, are obliged to give the word to the corporal of the guard.

Royal Parapet. A bank about three fathoms broad, and six feet high, placed upon the brink of the rampart, towards the country, its use is to cover those who defend the rampart.

To Run the Gauntlet. A punishment for considerable offences. When a soldier is sentenced to *Run the Gauntlet*, the regiment is drawn out, and make a lane, each soldier having a switch in his hand. The criminal's shoulders and back are naked, and as he runs along, every one has

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a stroke at him. While he runs, the drums beat at each end of the lane. Sometimes he runs three times, sometimes five, and sometimes seven times, according to the nature of the offence. If it be intended to make the punishment rigorous, the officers have a watchful eye to see that the men do not favour the criminal, and punish any that presume so to do.

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SABRE, a kind of sword, or scimeter, with a very broad and heavy blade, thick at the back, and a little falcated or crooked towards the point.

It is the ordinary weapon used by the Turks, who are said to be very expert in the use of it.

Sac à Terre. Vide *Canvas Bags.* *Safe Guard.* A protection which the prince, or his general, gives to some of the enemy's country, to secure them from being ravaged by his men, or quartered upon. Soldiers left in such places, to secure them against their own men, are called safe guards.

Saker, the lowest fort. A cannon three inches and four eighths diameter in the bore, eight feet long, 1400 weight: its charge of powder is three pounds six ounces, and it carries a bullet three inches and two eighths diameter, and four pounds twelve ounces weight. The point-blank shot of it is 150 paces.

Saker, ordinary. A gun three inches, six eighths diameter in the bore, nine feet long, 1500 weight; takes 4lb. for its charge of powder, and carries a bullet three inches and four eighths diameter, and six pounds weight. Its point-blank shot 160 paces.

Saker, of the largest size. Four inches diameter in the bore, ten feet long, 1800 weight, its charge 5lb. of powder; the diameter of its shot, 3 inches and six eighths, the weight of it seven pounds five ounces, the point blank shot of the piece 163 paces. They are all very good field pieces.

Saker,

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Salet. *Sallet* or *Salade*, a light covering or armour for the head, antiently worn by the light horse, only differing from the casquet in that it had no crest, and was little more than a bare cap.

Saliant, denotes projection. There are two kinds of angles, the one saliant, which are those that present their point outwards; the other re-entering, which have their points inwards. Instances of both kinds we have in tenailles and star works. See the article *Angle*, &c.

A Sally, in *French*, *Sortie*. The issuing out of the besieged from their works, and falling upon the besiegers to cut them off, and destroy their works; as they often do in successful sallies, killing many men, destroying the trenches and batteries, and nailing the cannon. We say, 'To make a sally,' 'To repulse a sally,' 'To cut off a sally,' that is, to get between them that made it and home. When a place besieged is weak in men, they make few sallies; but when the garrison is strong, and the inhabitants numerous, the governor ought to disturb the enemy by sallies, which ought to be as frequent as possible. Those who make the sally, are to be armed with short arms, and are to have grenades, firepots, goudrons and pioneers, to destroy and level the enemy's works.

To Salute a prince, or person of extraordinary quality, at his coming into a garrison, is the firing of the cannon round the place. On less occasions the small arms of a particular corps only salute. Likewise in the field, when a regiment is to be viewed by a king or his general, the drums beat a march as he approaches, and the officers salute one after another as he passes by, stepping back with the right foot and hand, and bowing the spears of their half pikes to the ground, and afterwards recovering them gently, and bringing up the foot and hand, and planting them. As soon as they have saluted, they are to pull off their hats without bowing, but standing upright. The ensigns salute all together, bringing down their colours near the ground directly before them at one motion, and having taken them up again gently, lift their hats. If it be a review of the army, every battalion

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is to salute with musquets and bayonets charged. We call any of these actions *A Salute*.

Sand Bags. Bags containing about a cubical foot of earth, used for raising parapets in halles. See *Canvas bags*.

Sap, or *Sappe*. A trench dug gradually deep under the earth, to pass under the glacis, and open a way to come under cover to the passage of the moat. After they have overcome all the obstacles which the besieged have opposed to hinder the advancement of their approaches, and that notwithstanding their frequent sallies, they are at last got near the foot of the glacis, the trench is carried directly forwards, the workmen covering themselves the best way they can, with blinds, woolpacks, Sand bags, or mantelets upon wheels. When they are got to the foot of the glacis, they make epaulments or traverses on each side to lodge a good body of men. The sap is made five or six fathom from the salient angle of the glacis, where the men are only covered sideways; wherefore they lay planks over head, with hurdles and earth above them. Having by this means obliged the enemy to quit the covert way, the pioneers, with mantelets, woolpacks, or sand bags, make immediately a lodgment, covering themselves the most advantageously they can from the fire of the opposite bastion. Formerly this word *Sappe* signified a hole dug under a building, in order to overthrow it. When a covert way is well defended by musketeers, the besiegers must make their way down into it by *Sappe*. Vide *Descent*.

Sarrazine. The same as herse, or portcullice. See *Herse*.

Saucisse. A long train of powder rolled up in a pitched cloth, and sewed together in length, so that it may reach from the fourneau, or chamber of the mine, to the place where the engineer stands to spring the mine. It may be about two inches diameter. There are generally two *Saucisses* to every mine, that if the one fails, the other may hit. *Saucisses* are also used to fire caissons, which see.

Saucissons, or *Saucisses*. Faggots made of the bodies of underwood, or of the large branches of great trees, where in they differ from fascines, which are of small wood.

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The *Sauciffon* is bound in the middle, and at both ends, and serves to cover the men, and make epaulments, and for other uses. They are about a foot and a half, or two feet thick, and four feet long. They are good to stop passages, and being mixed with earth and fascines, to make traverses over a wet ditch.

Scalade, or Escalade. A furious attack upon a wall or rampart, contrary to form, and with no precaution to secure the men, carried on with ladders, to insult the wall by open force.

Scale. A right line, or rule, divided into equal parts, representing miles, fathoms, paces, feet, inches, or any other measure; it is used in making plans upon paper, in giving each line its true length. Gunners have also a peculiar *Scale*.

Scarpe, or Escarpe. The interior talus or slope of the ditch, next the place, at the foot of the rampart or *l'ziere*.

Scenography, which is likewise called *Perspective* or *Visto*, is the natural representation of a place, such as it appears to us when we look upon it from without, considering its situation, the form of its walls, the number and figure of its steeples, and the top of its buildings, both public and private.

Slavonians, or Waradins. Infantry. Their cloathing is nothing more than a cassock, of white coarse cloth, which comes down to their knees, and which they bind to their bodies with a leather thong: their breeches are very large, made of linen, and come down to their ankles: their shoes are a piece of skin, or felt, tied to their feet with cords: on their heads they have a bonnet of black felt, which rises up like a sugar loaf, but round, and not with a sharp point, the brim of which is cut with a peak. Their arms are a fusil, and pistols; the butt end of their fusil serves them for a spade, when they have occasion to throw up earth: they carry also a great knife; and, when they kill their enemies, they have a sort of satisfaction in putting them out of their pain with this weapon. Besides these weapons, they carry also a sort of mace, which they use to great advantage, by reason of

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their extraordinary strength: they easily knock down a horse, or break open a gate with it, without trouble.

Sconce. A small field fort, built for the defence of some pass. See the article *Fort*.

To scour the Length of a Line. To rake it from end to end with the shot, so that every bullet which comes in at one end, sweeps all along to the other, and leaves no place of security.

Second Captain, or Lieutenant in Second. One whose company has been broke, and he is joined to another, to act, and serve under the captain, or lieutenant of it, and receive pay as reformed. There are also *Second captains* and *Lieutenants* of the first creation, that is, those who were never so in the other companies; but particularly *Second Lieutenants* are much used among the foot in *France*, and in some *English* regiments.

Seniority. The order of time elapsed since the first raising of two regiments, or of the officers receiving their commissions. In the line of battle, the squadrons of horse are posted on the right or left of the line, according to the *Seniority* of the officers, that is, of their commissions; for the colonels of horse command by the *Seniority* of their commissions: but this method is not observed among the foot; for their colone's have precedence and command, according to the *Seniority* of their regiments. The captains in the same regiment of horse or foot, roll, and have place among themselves, according to the *Seniority* of their commissions; and their troops or companies have no preference one before the other, but by the date of their captain's commissions. The first captain failing, his company, lately the first, becomes the last in the battalion, and the second becomes the first. As for subalterns, the *Seniority* of their commissions does not alter their post, but they roll, and ascend or descend with their companies.

Sentinel, or Centinel. A private soldier taken out of the *Corps de Garde*, and posted upon any spot of ground, to stand and watch carefully for the security of the said guard, of any body of troops, or post, and prevent any surprize from the enemy.

Sentinel

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Sentinel perdu. A centinel posted near an enemy in some very dangerous post, where he is in perpetual hazard of being lost.

Serjeant. An officer without commission, or a staff officer, above a corporal, in a company of foot, or troop of dragoons. Sometimes he commands small detachments, and, among other things, it is his particular duty to see the men keep their due distances. Generally common companies have two *Serjeants* each. He must read and write, and his weapon is a halbert. They are obliged to keep a list of the soldiers and their lodgings, and to visit them often. They are to teach the company the exercise of their arms, and how they are to preserve their ranks and files. Their post on a march is on the flanks, to cause the company to march in good order. A *Serjeant* of each company is to be on the parade at night, to receive the orders and the word from the adjutant, which he is to carry to his captain and subalterns. When the adjutant comes, the *Serjeants* place themselves in a ring with him, according to the precedency of their companies, with their hats on the spears of their halberts; and after he has given them the orders, he whispers the word to the first *Serjeant*, who gives it to the next, and so on, till it comes to the youngest, who gives it to the adjutant. They acquaint the officers who are to go next upon duty. They visit the mens arms, and distribute ammunition to them.

Serjeant Major. Vide *Major*.

Shot. All sorts of bullets for whatsoever fire arms, from the cannon to the pistol. Those for cannon are of iron; those for muskets, carabines and pistols, of lead. At sea they use *Chain* and *Bar Shot*, which are two whole, or half bullets joined by an iron bar, or chain, which gives them length to cut all they meet with. They are very useful to cut an enemy's sail and rigging. Vide *Bullet*.

Shovels. Used in all works, too well known to need a description.

Shoulder of a Bastion. Where the face and flank meet. See *Epaule*.

Sides of Horn Works, Crown works, Tenailles, and such like out works, by the French called Ailles, or Wings, are the ramparts and parapets that enclose them on the right

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and left, from the gorge to the head. These sides when they are not longer than musket shot, are generally strait lines, because then they are flanked from the place. But if the sides are above musket shot, they are sometimes indented, or made with redans; or else there are traverses, or cross intrenchments, cut in their ditch. So that it is more dangerous attacking the sides of these works than the head.

Siege. The encampment of an army entrenched and fortified round a place, with an intention to take it. When a general designs to *besiege* a place, he must first order it to be invested by a body of horse, under the command of a lieutenant general, to prevent any succours from entering the place. The method of encamping in a *Siege*, differs from that on a march: for in a *Siege* the army surrounds the place, that nothing may enter, and lies without cannon shot of the town. If the place be situated on a river, part of the army is detached to the other side; and bridges of communication are made above and below the town, with redoubts guarded by a body of foot. If the place be encompassed with mountains, they possess all the heights from whence they can gaul the enemy. At a *Siege* the army encamps with their backs to the place; battalions and squadrons interlined. The engineers trace the lines of circumvallation and contravallation, with redoubts and angles, at proper distances, and every regiment works at the place appointed them. The line of circumvallation is without the camp, to prevent succours. The line of contravallation is that betwixt the army and the place, and it covers the *Besiegers* from the sallies of the garrison. When the general has disposed his camps, placed his guards, and established the lieutenant generals to command in the particular quarters, with orders for their conduct, he goes with the engineers to view the place, and orders the attack in the quarter he judges the weakest: but because it is difficult to find two places situated after the same manner, so it is hard to make two *Sieges* in the same way. For there are some towns, where, without opening trenches, the *besiegers* advance immediately, and lodge themselves on the counterscarp, by the facilitation of hollow ways, ruins, cavities, or
weak.

weak suburbs: and there are others, where the ground is better managed, where, within cannon shot of the out-works, there is nothing which can facilitate the enemy's approaches. To such sort of places, which are the best, there must be trenches and approaches to gain the ground foot by foot, which renders such *Sieges* dangerous and very long, because of many accidents which happen daily in the attacks, sallies, mines, and other accidents of war.

To make or form a Siege, there must be an army sufficient to furnish five or six reliefs for the trenches, pioneers, guards, convoys, escorts, and what else may happen: an artillery, with magazines furnished with a sufficient quantity of ammunition, and provisions: and an hospital with physicians, surgeons, &c. and medicines.

To turn a Siege into a Blockade, is to give over the attacks, and possess all the avenues leading to the place, to hinder any succours or convoys getting into it, with a design to take it by famine.

To raise a Siege, is entirely to abandon the design, upon the approach of a superior army, or the meeting with insurmountable difficulties. See *Raise*.

Signals. Certain signs agreed upon, for suddenly conveying intelligence to places to which the voice cannot reach. Thus, in some countries, fires are lighted upon the hills, at the approach of danger: and at the beginning of a battle or an attack, signals are usually made with drums and trumpets.

Sillon. A work raised in the midst of a ditch to defend it, when it is too wide. This work has no particular form, but, as it runs, forms little bastions, half moons, and redans, or indentures, which are lower than the rampart of the place, but higher than the covert way. This name of *Sillon* is going out of use, and they now call it envelope. Vide *Envelope*, *Counter guard*, and *Lunette*.

Single Tenaille. Vide *Tenaille*.

Sixain. An antient order of battle for six battalions; which, supposing them to be all in a line, is formed thus: the second and fifth battalions advance and constitute the van; the first and sixth fall back into the rear, or *Corps de Reserve*, and the third and fourth remain on the same ground.

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ground for the main battle. Every battalion ought to have a squadron of horse on its right, and another on its left. Any number of battalions, produced by the multiplication of six, may be drawn up in this order; for twelve battalions will make two Sixains, eighteen will make three, and so on. *Vide Cinquain.*

Skirmish. A sudden encounter of two small bodies of men, when they fight in confusion without observing order.

A Soldier. He that is listed, and receives pay, to serve his prince or state in the wars, either on foot, or on horseback.

To sound the Trumpet. *Vide Trumpet.*

Spades, for throwing up works, do not need any thing particular to be said of them.

To Spin Hay, is to twist it up in ropes very hard, for an expedition in the winter time; each trooper carrying as much as he can behind him.

Spring. The spring of the lock of a musket or pistol is a piece of steel violently bent; which being set at liberty, strikes down the cock.

Spunge of a Gun. A long staff put into a roll of wood, which is covered over with a sheep's skin, the wool outwards, to *spunge* and clean the gun. As soon as the gun has fired, a matross is ready with the *Spunge*, while another claps his finger on the vent to stop the air, and stifle what fire may remain in the chamber. The *Spunge*, rammer, and ladle, after the gun is loaded, are laid under her betwixt the wheel's.

Spurs. Are walls that cross a part of the rampart, and join to the town wall.

Spy. One who is sent into an enemy's army to watch their actions. When a spy is discovered, he is hanged directly.

Squadron. A body of horse, the number not fixed, but from an hundred to two hundred men, sometimes more, and sometimes less, according as generals see fit, the army is in strength, and occasion requires. It is usually composed of three troops, each 50 troopers. A greater number than 200 can never be advantageously posted, nor have room to act in narrow grounds. The eldest troop takes

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takes always the right of the squadron; the second the left, and the youngest the center. A squadron is always drawn up three deep, that is to say, in three ranks; having the length of a horse, or rather more, between rank and rank. The standard is always in the center of the first rank. When the army is encamped, a squadron of horse is allowed 30 paces for their front, and 30 paces interval between one squadron and another: on a march, the squadrons of the same column ought to keep a convenient distance.

Square. A figure well known to be composed of four equal sides, and four right angles.

Long Square. Has right angles, but two of the sides are long, and the other two short.

Square Battalion of men. That which is composed of an equal number of men in rank and file, or when the number of men in each file is equal to the number of men in each rank.

Square Battalion of Ground, is when the ground of the flanks is of the same extent, as the ground of the front and rear. To make a square battalion of men, whose number is known, as 50, take the nearest radix or square root, which is seven, for the number of men in rank and file. To make a square battalion of ground, the number being likewise determined, as 60, that number must be multiplied by 3, which is the number of feet that every man takes in front, and the product 180 divided by 7, which is the number of feet that each man takes up in deepness, or the distance of the ranks: the quotient is 25; the square root of which is 5, which is the number of men in each file; and if by this radix 5, you divide 60, the quotient is 12 for the number of men in each rank.

Hollow Square. A body of foot drawn up with an empty space in the middle, for the colours, drums, and baggage, facing, and covered by the bayonets every way, to oppose the horse.

Standard, a sort of banner or flag, borne as a signal for the joining together of the several troops belonging to the same body.

The standard is usually a piece of silk or damask, about a foot and a half square; on which is embroidered the
arms

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arms, device, or cypher of the prince, or of the colonel. It is fixed on a lance about 8 or 9 feet long, and carried in the center of the first rank of the squadron. In rainy or bad weather, it has a case of leather over it.

The standard is used for any martial ensign of horse, but more particularly for that of the general, or the royal standard: those borne by the foot, are rather called colours.

Star Redoubts, are now out of use, the square being found more convenient. They were made with saillant and re-entering angles, and had from 5 to 8 points; and each of their sides or faces was from 12 to 25 fathom long.

Stratagem. Any device for the deceiving and surprising an enemy.

Sub Brigadier. A post in the troops of guards, next under a brigadier.

Sub Lieutenant. An officer in regiments of fusileers, and in companies of grenadiers, where there are no ensigns, having a commission as youngest lieutenant, and pay only as ensign: but takes place of all ensigns, except the guards.

Subaltern, a subordinate officer, or one who discharges his post under the command, and subject to the direction of another: such are lieutenants, sub-lieutenants, cornets and ensigns, who serve under the captain; but custom has now appropriated the term to those of much lower ranks, as serjeants, and the like.

Storm. See *Affault*, *Insult*.

Stratarithmometry, the act of drawing up an army, or any part of it, in any given geometrical figure; and of expressing the number of men contained in such a figure, as they stand in array, either near at hand, or at any distance assigned.

Straw. A word of command to dismiss the soldiers when they have grounded their arms, so that they be ready to return to them upon the first firing of a musket, or beat of drum.

Subsistence. Is money paid weekly, monthly, or otherwise, to soldiers, for them to subsist on till the general pay days, when they receive what more is due to them; for the subsistence is always less than the pay, because
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their cloaths, accoutrements, tents, bread, &c. are to be paid. It is likewise the money paid the officers upon account, till their accounts be made up, which is generally once a year, and then they are paid their arrears.

Sub Divisions. The lesser parcels into which a regiment is divided in marching, being half the greater divisions.

Succour. To succour a place, is to raise the siege, driving the enemy from before it.

Superficial Fourneau. Vide *Caisson*.

Surface in Fortification. That part of the exterior side, which is terminated by the flank, prolonged or extended, and the angle of the nearest bastion. The double of this line, with the curtain, is equal to the exterior side.

Surveyor of the Ordnance, is an officer whose charge is to survey all the king's ordnance, stores, and provisions of war, in custody of the store-keeper of the Tower of London; to allow all bills of debts; to keep checks on labourers and artificers works, &c.

Suspension of Arms, a short truce agreed on by both armies, in order to bury the dead, wait for fresh instructions, or the like.

Sutler. One that follows the camp, and sells all sorts of provisions to the soldiers. They pitch their tents in the rear of each regiment, and about the general's quarters. In all garrisons there are also sutlers, who serve the soldiery.

Swallow's Tail. A kind of out-work, only differing from a single tenaille, in that its sides are not parallel as those of the tenaille, but narrower towards the fortified place, than towards the country.

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TACTICS, is the method of disposing forces to the best advantage in order of battle, and of performing the several military motions and evolutions.

Tail of the Trenches. The first work the besiegers make when they open the trenches, as the head of the attack is carried on towards the place. There is always danger at the tail of the trenches, because it is exposed to the batteries of the place, and the cannon, mounted on the cavaliers, plays upon those that relieve and mount the guard. A guard of horse is ever kept at the tail of the trenches, to be in a readiness to come to the relief of workmen at the head, in case of sallies: and this guard is relieved as often as the trenches.

Talus. The slope allowed to every rampart work raised of earth, that it may stand the faster, and is more or less, according as the earth is looser or more binding. As for instance, the rampart is not built upright, because it is of earth; but it goes sloping, being thicker at the bottom or foot, than at the top, and this slope is called the *Talus*.

Exterior, or Outward Talus. The slope given to a work on the side towards the country, and ought to be as small as possible, that the enemy may not find it easy to be mounted, either by scalade or otherwise. But if the earth be not good, the *Talus* must be large, that it may keep it up the better. In such a case it were good to support the earth with a wall, which the French call *Chemise*, when it is not thick, and otherwise *Revetement*, which signifies cloathing or fencing, to make the earth last longer, and to save the making too large a *Talus*. This wall ought to have a small *Talus* of a fifth or sixth part of its height, and for a reinforcement it is generally supported in the inside by counter-forts, or a sort of buttresses.

Interior, or Inward Talus. The slope of the work next the town, which is much larger than that of the outside; and has at the angles of the gorge, and sometimes in the middle of the curtain, ramps, or sloping roads, to mount
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upon the terre-plein of the rampart. The interior *Talus* of the parapet ought to be very small, that the men may with more ease fire over it. See *Profile*.

Superior or Upper Talus of the Parapet. The slope on the top of the parapet. This slope allows the soldiers to defend the covert way with small shot, which they could not do were it level.

Tat-too. Sometimes called the retreat, or beat of drum at night for all soldiers in garrison to repair to their quarters, and to their tents in the field: after which, in frontier towns, and where the inhabitants are suspected, they are not permitted to stir abroad, or, at least, not without a light. See *Retreat*.

Te Deum. A holy hymn sung in thanksgiving for any victory obtained, which is often abused, being sung by those that are beaten to conceal their shame.

Temoins. A French term for the pieces of earth left standing as marks or witnesses, in the fosses of places they are emptying, to the end they may know exactly how many cubical fathoms or feet of earth have been carried away, thereby to pay the workmen.

Tenaille of the place, is that which is comprehended between the points of two neighbouring bastions; that is to say, the curtain, the two flanks that are raised on the curtain, and the two sides of the bastions which face one another; so that it is the same with what is otherwise called the face of the fortress. See the article *Bastion*.

Tenaille. An outwork longer than broad, whose long sides are parallel; and is either single or double. There are likewise *Tenailles* in the foss.

Single Tenaille. A work whose front is advanced towards the country, having two faces, forming a re-entring or reentrant angle; its two long sides terminate on the counterscarp, opposite to the angle of the shoulder.

Double Tenaille. A work whose front having four faces, forms two re-entrings, and three salient angles; its long sides are likewise parallel, and terminate on the counterscarp, opposite to the angle of the shoulder. Both the single and double *Tenailles* have this fault, that they are not flanked or defended at the re-entring angle, because the height of the parapet hinders the soldiers from discovering

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covering before that angle. Therefore *Tenailles* are only made when there is not time enough to make hornworks. The ramparts, parapets, fosses, covert way, and glacis of *Tenailles*, are the same with other outworks.

Tenaille in the Foss. A low work raised before the curtain in the middle of the foss, and is of three different sorts. The first is composed of a curtain, two flanks, and two faces. The rampart of the curtain, including the parapet and talus, is but five fathom thick, but the rampart of the flanks and faces is seven. The second is composed only of two faces, made on the lines of defence, whose rampart and faces are parallel. The third differs from the last, only in having its rampart parallel to the curtain of the place. All these sorts are very good defences for the foss, and lie so low, that they cannot be hurt by the besiegers cannon till it be on the covert way. See *Quatrième Tronde*.

Terre Plein of a Rampart. The horizontal superficies of the rampart, between the interior talus and the banquet. 'Tis on the *Terre plein* that the defendants go and come: it is likewise the passage of the rounds.

To Tertiate a Piece. To examine whether it has the due thickness of metal in every place, and whether it be true bored.

Toise A measure used by the French engineers in all their fortifications, and is a fathom of six feet. A square *Toise* is 36 square feet, and a cubical *Toise* is 216 cubical feet.

Tompson. A stopple of wood or cork, which is used in loading a mortar; it is exactly fitted for the mouth of the chamber, and is drove hard in after the powder, and the bomb is placed above it: it serves, by confining the powder, to make it burst out with the more violence.

Tompson is likewise a stopple of wood for the mouth of the mortar or gun, to keep out rain.

Tong. The same as *Tenaille*.

Touch-hole. The hole of any piece to give fire to it.

Town Major. Vide *Major*.

Train. A line of gunpowder, laid to give fire to a quantity thereof, in order to do execution by blowing up earth, works, buildings, &c.

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Train, or Traile, of Artillery, includes the great guns, and other pieces of ordnance belonging to an army in the field. See the article *Cannon*.

Train-bands, or Trained Bands. A name given to the militia of England. See the article *Militia*.

Transum. A piece of wood which goes across betwixt the cheeks of a gun carriage, or of a gin, to keep them fixed together; each *Transum* in a carriage is strengthened by a bolt of iron.

Trapeze. A figure that has only two of its four sides parallel.

Trapezoid, or Tablet. Has all its four sides and angles unequal, and no sides parallel.

Traverse. A trench with a parapet, and sometimes two, one on the right and another on the left. Sometimes this trench is open over head, and sometimes covered with planks, loaded with earth. This word is often taken for a gallery, and also signifies a retrenchment, or line fortified with fascines, barrels, or bags of earth, or gabions. *Traverses* are very advantageous in stopping an enemy's way, and to prevent being enfiladed. They are likewise a good defence in a dry foss, in making the parapet on the side next the opposite flank.

Traverse on a wet Foss, is made by throwing into the *Foss*, over against the place where the miner is to be put to the foot of the wall, abundance of saucissons, joists, and other pieces of wood, with fascines, stones, earth, and all other things which can help to fill up the *Foss*, and be capable of carrying a gallery for such as use it.

Traverse, is likewise a wall of earth or stone across a work which is commanded, to cover the men.

To traverse a Gun or Mortar, is to bring her about with hand spikes to the right or left, till she is pointed exactly at the object.

Trench. In general it signifies any ditch or cut, made in the earth.

Trenches, Approaches, or Lines of Attack. Works carried on by the besiegers, being usually cut into the ground, with parapets next the place, for their men to gain ground, and draw near the fortifications of the place under covert. They are carried on differently, according to the nature
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of the ground. For if all round the town the ground be rocky, the *Trenches* are raised above it with fascines, or faggots, bags of earth, gabions, woolpacks, epaulments of earth brought from far, and any thing that may cover the men without flying, as stones, and the like. But if the earth is fit to dig, the *Trenches* are no other than a ditch, or way sunk down into the earth, and edged with a parapet next the besieged: its depth is about six or seven feet, and its breadth seven or eight. Howsoever the *Trenches* be made, they must always be so contrived, that the besieged may never enfilade them, that is, scour the length of them with their shot. For this reason they are carried on by coudes, elbows, or traverses, which are lines returning back from the end of them, and running almost parallel with the place. As the *Trenches* are never carried on but in the night time, therefore the ground ought to be exactly viewed in the day. On the angles or sides of the *Trench*, there ought to be lodgments or epaulments in form of traverses, to hinder the sallies of the garrison, favour the advancement of the *Trenches*, and to sustain the workmen. These lodgments are small *Trenches* fronting the place besieged, and joining the *Trench* at one end. The platforms for the batteries are made behind the *Trenches*, the first at a good distance, to be used only against sallies of the garrison. As the approaches advance, the batteries are brought nearer, to ruin the defences of the place, and dismount the artillery of the besieged. The batteries for the breaches are made when the *Trenches* are advanced near the covert way. If there be two attacks, there must be lines of communication, or *Boyaus*, between the two, with places of arms, at convenient distances. The parapet ought to be five feet thick, and have banquets for the soldiers to mount upon.

Returns of a Trench. The elbows and turnings, which form the lines of approach, and are made as near as can be parallel to the defences of the place, to prevent their being enfiladed.

To open the Trenches. See *Open*.

To carry on the Trenches. To advance them towards the place.

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To mount the Trenches, is to mount guard in the *Trenches*.

To relieve the Trenches, is to relieve the guards of the *Trenches*. *To dismount the Trenches*, is to come off the guard of the *Trenches*. *To cleanse or scour the Trenches*, is to make a vigorous sally upon the guard of the trenches, forcing them to quit the ground, breaking down the parapet, filling up the *Trench*, and nailing their cannon.

Counter Trenches. Trenches made against the besiegers, which consequently have their parapet turned against the enemy's approaches, and are enfiladed from several parts of the place, on purpose to render them useless to the enemy, if they chance to be masters of them; but they ought not to be enfiladed or commanded by any height in the enemy's trenches.

Triangle, or *Trigon*. A figure consisting of three sides, and as many angles.

Triangle Rectangular. Which has one right angle.

Triangle Ambligone. Which has an obtuse angle.

Triangle Oxigon. Which has a sharp or acute angle.

Triangle Equilateral. Which has all three sides of an equal length.

Triangle Isocele. Which has only two sides equal.

Triangle Scalene. Which has all three lines unequal.

Troop of Horse or Dragoons. A small body of about 50 or 60, sometimes more, sometimes less; commanded by a captain. Each troop has, besides a captain, a lieutenant, cornet, quarter master, and three corporals, who are the lowest officers in a *Troop*. A regiment of light horse, in England, consists of six *Troops*, and sometimes nine.

Independent Troop. That which is not incorporated in any regiment.

Troop. *To beat the Troop*, or *Assembly*. Is the second beat of drum when the foot are to march; the general being the first to give notice of the march, and the troop the next, for the men to repair to their colours.

Trooper. The vulgar name by which every horse soldier is called. The French call them *Maitres*, or *Cavaliers*.

Trumpet. Signifies either the martial instrument used among the horse, to give notice what they are to do, or the man that sounds it. We say, 'To sound to horse, a march, a charge, a retreat, a levee.' Every troop of
horse

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horse has two trumpets. The sound of the *Trumpet* before a march, is to boot and saddle, at which the troopers get themselves ready to mount. This is sounded when the drums beat the general. When the assembly is beat the trumpet sounds *To Horse*, and they all mount; the third is *To March*. They sound a *Charge* in day of battle, and the *Retreat* at night.

Truncheon. A short staff, or battoon, used by kings, generals, and great officers, as a mark of their command.

Trunions of a Gun. The two pieces of metal sticking out of the sides of a piece, by which it swings in its carriage. They are generally the diameter of the ball of the piece in length, and their diameter is the same with the diameter of the ball. The axis of the *Trunions* is equal with the lowermost side of the chace of the gun.

Trunion Ring, is that ornament or jutting-out a little before the trunions.

Turnpike. A piece of wood, or spar, 10, 12, or 14 feet long, 6 or 8 inches, or even a foot diameter, cut in a sex-angular form, every side of it bored full of holes about an inch diameter, and 5 or 6 inches from one another, but not answering on the sides to one another; on the contrary, all differently profited. Through these holes, pickets, that is, short pikes, are run, being about 5 or 6 feet long, and an inch diameter, pointed with iron, and fastened into the holes with nails or wedges. Thus the points stand out every way; and these *Turnpikes* are of great use to stop an enemy, being placed on a breach, or at the entrance of a camp, or in any gap. They are likewise a good defence against the horse of an army. They are sometimes mounted on wheels, with artificial fires, and rolled down in an assault. *Turnpikes* are likewise called *Chevaux de Frise*.

V

VAN, or *Vanguard*. The first line of an army drawn up in battalia, which gives the first charge upon the enemy; the second line is the main body, and the

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third the rear guard, or body of reserve. The *Van* is the front, or foremost part of any body or bodies of men.

Vedette. A centry on horseback, or a trooper upon a centry post. His horse's head is towards the place from whence any danger is feared, and his carabine is advanced with the butt end against his right thigh; when the army lies encamped, there are *Vedettes* posted at all avenues, and on all rising grounds, to watch for its security.

To View a place in order to besiege it, which the French call reconnoitre, is when the general, accompanied by the engineer, rides round the place, observing the situation of it, with the nature of the country about it; thereby to judge of the most convenient place for opening the trenches, and carrying on the approaches; to find out proper places for encamping the army, for the lines of circumvallation and contravallation, and for the park of artillery.

Veteran. An appellation given to an old soldier, who has served in a number of campaigns.

To View, or Reconnoitre an Enemy. To get as near their camp as possible; to see the nature of the ground, and the avenues to it; to find out the strength and weakness of their encampment, where they may best be attacked, or whether it be proper to hazard bringing them to action. Parties of horse are generally sent out to view the enemy's march, to know whither it tends; thereby to guess at their designs, and to regulate the motions of the army accordingly.

To view or reconnoitre, is likewise when the quarter master general, with a strong party of horse, goes to view the ways for the march of an army, and to find the most convenient place for an encampment.

Ulans. Horsemen. The officers at home are dressed in cloth, and the private men in sheep's skins. They wear a mantle made of wool, an inch thick, so that the rain can never enter it: they fasten it about their necks with a leathern thong, or piece of silk, and so turn it which way the wind sits, or the rain falls; their breeches are very large, and come down to their ancles: they wear a bonnet and buskins, the heels of which are shod with small nails: they had formerly white cocks wings at their backs, which were to fright their enemy's horses; and for the same purpose, their standards were adorned with eagles

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gles wings. The arms they use are a bow and arrows, and sabre, which they manage with great dexterity. When they ride full speed, they will raise themselves upon their stirrups, and, like the old Parthians, discharge whole showers of arrows behind them upon their pursuers. They are in general much afraid of fire arms: but those in the service of the king of Prussia, are armed with a carabine and pistols. They always carry a knife and an awl, for the making their whips, which they call *Kantschou*, the handle of which is composed of several little twigs of brown wood, to which they attribute this singular virtue, that by striking thrice on the crupper, a horse that cannot stale is immediately cured.

Volunteers. Gentlemen, who, without having any certain post, pay, or employment, in the forces under command, put themselves at their own expence upon warlike expeditions, and run into dangers only to gain honour and employment.

Utenfils. The necessaries due to every soldier, and to be furnished by his host where he is quartered: they are a bed with sheets, a pot, a glass, or cup to drink out of, a dish, a place at the fire, and a candle. Sometimes the inhabitants compound, and allow so much in money to be eased of it.

W

WADD. A stopper of hay or straw forced into a gun upon the powder, to keep it close in the chamber.

When it is close to the powder, the gunner generally gives it three thumps with the rammer head.

Wad Hook, or Worm. A small iron turned serpentwise, like a screw, and put upon the end of a long staff, to draw out the wad of a gun when she is to be unloaded.

Waggon Master General. He who has the ordering and marching of the baggage of an army. On a day of march he meets the baggage at the place appointed in the orders,

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ders, and marshals it according to the rank of the brigade or regiment each waggon belongs to, and marches it according to the route given him ; which is sometimes in one column, sometimes in two ; sometimes after the artillery ; and sometimes the baggage of each column follows their respective column.

War. A contest or difference between princes, states, or large bodies of people.

Council of War. See *Council*.

Warning Piece. The gun which fires every night about sun-set, to give notice to the drums and trumpets of the army, to beat and sound the retreat or *Tat-too*, which is likewise called *Setting the Watch*. See the article *Retreat*.

Waradins. See *Sclavonians*.

Wad-Hook. A rod or staff with an iron end turned serpentways or like a screw, to draw the wads or oakum out of a gun, when it is to be unloaded.

Warrant Officer. See *Officer*.

Watch. A number of men posted at any passage, or a company of the guards who go on the patrol. See the articles *Guard* and *Patrol*.

Way of the Rounds, is a space left for the passage of the rounds between the rampart and the wall of a fortified town. This is not now much in use ; because the parapet, not being above a foot thick, is soon overthrown by the enemy's cannon. See *Chemin des Rondes*, or *Fausse Braye*.

Well. A depth the miner sinks into the ground, and thence carries on the branches or galleries, to find out and disappoint the enemy's mines, or to prepare his own.

To Wheel. This is a motion that brings a battalion or squadron, to front on that side where the flank was, which is wheeling to the right or left, if an enemy appear ready to attack the flank, or if it be thought fit to fall upon the enemy's flank. In this motion the ranks and files must take care not to blend, but every one to keep his due distance ; and there must be very able serjeants at the angles, to see the files do not break and fall into confusion. If the battalion wheels to the right, the left wing moves first, describing the fourth part of a circle about the leader on the right, who is the centre of the motion, and stirs not off his ground. If the wheeling be to the left, the contrary is to be performed. *To wheel by single Ranks*, if

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it be to the right, the right hand man of each rank turns on his heel, while the left hand men move round, and the whole are formed into one rank, fronting as their flank was before. To reduce them into ranks again, the left hand men turn on their heels, while the right hand men move round. Squadrons of horse wheel after the same manner.

Wicket. A small door in a gate of a fortified place, at which a man on foot may get in, and which is sometimes opened when the gate is ordered to be kept shut. The height of it is about three feet and a half, and the breadth about two. Sometimes it is only a hole in a door, through which those on the inside can view what passes without.

Windage of a Gun. The difference between the diameter of the bore, and the diameter of the ball: for since the balls are rough, if they were not somewhat less than the bore, they might jam in the piece: so that the *Windage* of a demi culverin is a quarter of an inch.

Wind-Gun. See *Air-Gun*.

Windlass. A roller of wood square at each end, through which are either cross holes for hand spikes or staves across to turn it round: by this means it draws a rope, one end of which is fastened to some weight, which it raises up. They are used in gins, and about Dutch mortars, to help to elevate them.

Wing of an Army drawn up for Battle, or Wing of one of its Lines. The horse on the flanks, or at the end of each line on the right and left.

Wing of a Battalion, or Squadron. The right and left hand files, that make up each side or flank. Formerly when a battalion was drawn up, the pikes were in the centre, and the musqueteers on the wings, which wings are also called great divisions, or whole divisions of the battalion. In wheelings, when they wheel to the right, the left wing of the battalion moves first, whilst the right wing takes a short compass, turning up the file leader of the first file, as upon a centre. The contrary is done if they wheel to the left.

Wings in Fortification, denote the longer sides of horn works, crown works, tenailles, and the like out-works; including the ramparts and parapets, with which they are bounded on the right and left from their gorge to their front.

Winter Quarters. See *Quarters*.

Witnesses. See *Temoins*.

Y O U

The Word. A word that serves for a token, and mark of distinction, given privately every night in an army by the general, and in garrison by the governor, or other officer commanding in chief, to prevent surprise, and hinder an enemy, or any treacherous person, to pass backwards and forwards. When the governor, deputy governor, or town major, goes the rounds in a garrison, the officer commanding in every *Corps de Garde*, is to receive and give them the *Word*: but inferior rounds are to give the *Word* to the guard. In an army the general gives the word to the lieutenant general, or major-general of the day, who gives it to the majors of brigades, they to the adjutants, who give it first to the field officers, and afterwards to a serjeant of each company, who carry it to the subalterns. In garrison it is given by the governor, after the gates are shut, to the town major, who gives it to the adjutants, and they to the serjeants.

Words of Command, the terms used by officers in exercising battalions or squadrons, or when they are upon real action.

Works. All the fortifications about a place, are called the *Works of the Place*; and more particularly all detached *Works*, are called the *Out-works*. See *Fortification*, *Line*, *Trench*, &c. &c.

Worm. A screw of iron, to be fixed on the end of a rammer, to pull out the wad of a fi elock, carabine, or pistol, being the same with the wad-hook, only the one is more proper for small arms, and the other cannon.

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YEOMAN of the Guard, were antiently two hundred and fifty men, of the best rank under gentry, and of larger stature than ordinary, each being required to be six feet high.

At present there are but one hundred yeoman in constant duty, and seventy more not on duty, and as any of the hundred dies, his place is supplied out of the seventy.

Younger Regiment, or Officer. That regiment is youngest which was last raised, and that officer youngest, whose commission is of the latest date, though he be never so old a man, or have served never so long in other capacities. See more under the word *Seniority*. The

The new Method of FORTIFICATION, by the late Marshal SAXE, explained; with some OBSERVATIONS on the present Method of FORTIFYING Towns, and the Reasons why they are so liable to be reduced.

IT is surprising that the present erroneous method of fortifying towns has not yet been laid aside; but, as this opinion will probably appear extraordinary, it is necessary that I should justify it by reason.

Let us, in the first place, examine the usefulness of fortresses: they cover a country; they subject an enemy to the necessity of attacking them, before he can penetrate further; they afford a safe admission to your own troops on all occasions; they contain magazines, and form a secure receptacle, in the winter time, for artillery, ammunition, &c.

These things being properly considered, we shall find it most prudent and advantageous to have them erected at the junction of two rivers; because, in such situations, the enemy will be obliged to divide his army into three distinct bodies before he can be able to invest them, one of which may be repulsed and discomfited, before it can be succoured by the others: two sides of your fortress will likewise remain always open 'till the blockade is completed, which cannot possibly be done in a single day; neither can the necessary communication between the divisions of his army be kept up, without the use of three bridges, which will be exposed to the hazard of those sudden storms and inundations which usually happen in the campaigning season. — Moreover, in being thus master of the rivers, one thereby obtains a command of the whole country: one may divert their course, if occasion shall require it; may be readily furnished with supplies of provisions; may have magazines formed, and ammunition, or other sorts of military stores, transported to you with ease.

In a country where rivers are wanting, there are, nevertheless, other situations to be found, so strongly fortified by

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by nature, that it is next to an impossibility to invest them; and which, being accessible only in one place, may, at a small expence, be rendered, in a manner, impregnable. For, in general, I look upon the works of nature to be far stronger than those of art. What reason, therefore, can we plausibly assign for neglecting to make a proper use of them? Few cities have been originally founded for the purpose of sustaining a regular siege, but were indebted to trade for their largeness, and to chance for their situation. In the course of time they increased, and the inhabitants surrounded them with walls for a defence against the incursions of their common enemies, and a protection from those intestine disturbances in which kingdoms are sometimes involved. These precautions were so far just and necessary. But what could be the inducement for princes to fortify them? Before Christianity became established in the world, and when vanquished provinces were laid waste and depopulated, such a proceeding might wear some appearance of reason; but now that war is carried on with more moderation and humanity, as being by those measures productive of more advantage to the conqueror, who can be said to justify it? A town surrounded with a strong wall, and being capable of holding three or four hundred men, besides the inhabitants, together with some artillery, will be as secure as if the garrison consisted of as many thousands: and I insist upon it, that the latter, notwithstanding their superiority in numbers, will neither make a longer defence, nor a more advantageous capitulation for the inhabitants, when they surrender: but what use, is it probable, the enemy will make of the place after he has taken it? He will scarcely fortify it, but, as it appears to me, will rather content himself, with a contribution, and march further. Perhaps, indeed, the opposition he may expect in taking it, and the difficulty of keeping it afterwards, may deter him altogether from laying siege to it; for he will be afraid to trust the possession of it to a small garrison, and unwilling to expose a large one to the hazard of being made prisoners.

There is another more powerful reason to persuade me, that fortified cities are capable of making but a weak defence; which is, that notwithstanding a garrison is fur-

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nished with provisions for a three months siege, yet it is no sooner invested, than they find that there is hardly a sufficient quantity for eight days; because no extraordinary allowance is made in the calculation of numbers, for ten, twenty, or, perhaps, thirty thousand additional persons, who have abandoned the country for the security of themselves and their effects to find refuge there. The riches of a prince are not sufficient to provide magazines for the support of a whole province, in every place that is in danger of being attacked, much less to supply the annual consumption of them: for it would even exceed the boasted virtue of the philosopher's stone to do it, without creating a famine in his dominions. Some may, perhaps, observe, that those who could not furnish their own provisions, ought to be expelled the garrison; but such an inhuman proceeding would be attended with more misery and distress, than even the arrival of the enemy: for what multitudes are there in all cities, whose manner of livelihood would render them obnoxious to that treatment? But suppose it, nevertheless, to be put in execution, is it probable, that when the enemy invests the place, he will suffer these wretches to retire where they please, and the garrison to avail itself of their banishment? So far from it, that he will undoubtedly turn them back again; and surely the governor will not suffer them to perish with hunger at the gates, neither can he be able afterwards to justify such conduct to his sovereign; he will, therefore, be reduced to the necessity of admitting them, and of course become incapable of holding out long. For suppose that his garrison consists of five thousand men; that he has provisions for three months, and that the number of inhabitants, besides, amounts to thirty thousand: such an addition will, consequently, render one day's consumption of provisions equal to what six or seven were before, and the place not remain tenable for above twelve or fourteen days. But, provided it holds out even twenty the enemy has little or no trouble in carrying on the siege, because it must, at length, surrender of its own accord: and thus will all the millions, which have been expended in fortifying it, be thrown away.

What I have been saying appears to me sufficient to demon-

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demonstrate the great defects of fortified cities; and that it is most advantageous for a sovereign to erect fortresses in such situations as are strong by nature, and properly adapted to cover the country: after having done which, it will become a matter of prudence, if not to demolish the fortifications of his towns, as far as to the ramparts, at least to relinquish all thoughts of strengthening them for the future, or of laying out such immense sums of money to such useless and ineffectual purposes.

Notwithstanding what I have here advanced is founded upon sense and reason, yet I am conscious there is hardly a single person who will concur with me in opinion, so prevailing and so absolute is custom. A place situated, according to my plan, may be defended against an enemy for several months, or even years, provided it can be supplied with provisions, because it is free from that detriment and incumbrance which is unavoidably occasioned by citizens.

The sieges in Brabant had not been carried on with such rapid success, if the governors had not calculated the duration of their defence by that of their provisions; on which account they were as impatient for the making of a sufficient breach as the enemy, that they might be thereby furnished with a decent opportunity of capitulating: yet, notwithstanding this mutual disposition of the two contending parties towards the accomplishment of the same end, I have seen several governors obliged to surrender, without having had the honour of marching out through the breach.

It has been a remark of mine, at sieges, that the covert-way is crowded at night with men, and a great fire of small arms constantly made from thence, which does but very little execution, and fatigues the troops, even to a degree of abuse — The soldier who has been firing all night, is naturally tired; but, as his fife clock must be out of order, that part of the ensuing day, which he would be glad to appropriate to rest and refreshment, he is obliged to spend in cleaning and repairing it, and in making cartridges; a circumstance of infinite consequence, and which, unless attended to, will be productive of diseases, and a general dislike to the service. — It is towards

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the end of a siege, when every thing comes to be disputed by inches, that vigour and resolution are most wanted; at which time, the greater proofs you give of those, the more the enemy will be discouraged; for disorders will then begin to spread among them, forage and provisions will grow scarce, and all things seem to concur to their destruction. If, moreover, to add to their despondency, they perceive that your resistance is still stronger, and that it increases when they expected it to diminish, they will be at a loss how to act, and give themselves up totally to despair.

It is for these reasons, that the best troops ought always to be reserved for desperate affairs only, and never suffered to expose themselves upon the ramparts, or to do centinels duty in the night time, but to be sent to their quarters again, immediately after their return from any expedition on which they have been employed.

With regard to the fire which is made by the besieged from the covert-way and the ramparts upon the workmen during the night, it amounts to little more than so much noise; for the soldiers, to avoid the trouble of ramming down their charge, take the powder by handfuls, pour it loose into the barrel, and put the ball in after it; and, as by constant firing their shoulders become painful to them, and the obscurity of the night, likewise, prevents the officers from seeing what they do, they only place the muzzles upon the palisadoes, and fire at random.

It is much better to raise, towards the close of the day, some * barbet batteries, either in the covert-way, or upon the ramparts, and draw a line with chalk to direct their fire in the night time, towards the proper object, removing them again at break of day. These will do infinitely more execution than the small arms, because they will make way through gabions and fascines; the balls, being as large as walnuts, will scour the whole breadth of the trenches, and, by rolling and bounding a ricochet, will

* These batteries are raised about four feet higher than the terre-plein; so that the guns may be just high enough to fire over the parapet. The French have named them batteries en barbe, or en barbette; because the ball, in its passage out of the cannon, shaves, as it were, the grass from the upper talus of the parapet.

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go far beyond the port of musquetry: they will make dreadful havoc among the workmen, and those who serve the batteries; neither will the enemy's cannon be able to dismount or silence them. Twelve pieces, planted after this manner, will require no more than thirty-six soldiers and twelve cannoniers to work them, and will do more mischief than a thousand men posted in the covert-way; besides, your troops are, during all this time, at rest; and will, the day after, be in condition to be employed on any kind of service.—It may be objected, perhaps, that the consumption of powder will be very much increased by this method of firing; but the soldiers, with their small arms, waste more in the night time than they use; and, if ammunition is scarce, the number of guns upon these batteries may be accordingly less. The advantages resulting from it will be very considerable, in that your troops will be exposed to less fatigue, and, consequently, be more free from disorders; for nothing occasions them so much as night duties.

I shall only make one observation in this place, which is, that all the ancient fortifications are absolutely good for nothing, and the modern ones not much better. Augustus the Second, King of Poland, has formed an admirable plan of fortification; but, as the present construction of places is founded upon a different system, and we are compelled to make use of them as they are, I shall, therefore, only endeavour to remedy their most glaring defects; and, amongst many, that of all the outworks, for instance, being scarped at the gorge, is far from being the least: in order to remedy which, it is necessary to contrive an easy communication with them, so as to have power, when they fall into the hands of the besiegers, to assail them sword in hand from behind: for after they have made a lodgment in them, the number of men which they leave to keep possession is but small, because their covering party and pioneers are obliged to retire: if, therefore, you can command access to them, and attack them afterwards with a superior force, you must undoubtedly dislodge them; and, before they can renew the assault, their lodgment will be destroyed. This you may accomplish with safety, because you will not be exposed to any interruption

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tion from the fire of their batteries or trenches ; they will thus be obliged to make a fresh attack, in which they must lose an infinite number of men, because it will be necessary for them to assail it with a large force. When they have again carried the work, and their parties are retired, you are to repeat your sally, and dispossess them as before : nothing can be more destructive and discouraging to the besiegers, than this method of proceeding with them ; and the advantage, moreover, will be always on your side.

All works that are scarped at the gorge, are irrecoverable after once they have been carried, from the difficulty of their access, the security of the enemy, and the impracticableness of attacking them ; for, as they have only a small passage, and frequently a stair-case, so narrow as to admit but one man at a time, the assailants from the garrison will be destroyed as fast as they appear : they must of necessity, therefore, be totally abandoned, when once the enemy has got possession of them ; because to attempt to retake them afterwards, is only sacrificing the lives of your soldiers to no manner of purpose.

What has been said is sufficient to make it appear, that the besieged have no opportunities more favourable to them for distressing the enemy during the course of the siege, than those which are furnished by their own works, so long as they can keep up an easy communication with them.

Many people imagine, that, when once a breach is made in a work, it must be abandoned, as being no longer tenable. It is certain, indeed, that in such a case, one can scarcely be able to prevent the enemy's making a lodgment therein ; but he may be driven out again, and so reduced to the necessity of making a fresh assault ; which he may, in like manner, be repeatedly obliged to do, because the besieged will always have the advantage in maintaining it, and must destroy vast numbers at every attack. The only effectual expedient the enemy can fall upon, is to blow it up, which will probably not occur to him for some time, and until he has miscarried in every other attempt. But if, when the ditches are dry, the works are countermined in such a manner, as to have the
gallery

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gallery quite round them, he will not be able to avail himself of the mine, so long as the besieged remain in possession of them; because if he digs deeper than they have done, he must come to water.—Upon the whole, mines are productive of more dread than real mischief, and are generally discovered and their effects prevented.

Large works are the most serviceable, for small ones are capable of but little use or resistance, because they are so soon ruined and destroyed. There is a very good way in wet ditches, of retarding the construction of the gallery over them, which is by having large boats covered with thick planks, and filling them with armed soldiers: it will be impossible that it can be carried on, so long as the workmen continue exposed to certain destruction from the party posted in these boats, which will always approach quite close to them before they fire. Being made musket proof, the enemy's small arms will have no effect on them, in consequence of which, they will be obliged to raise a battery at the salient angle of the ditch. But, after a few fires, that will cease to be formidable to them, as they can presently get under cover, and the cannon can do but very little mischief in plunging. There are no practicable means of obstructing the passage of the ditch, but by the use of these boats, unless holes are made through their evetement, and guns planted behind it to scour the surface.

I shall now proceed to describe my own system, founded upon that of the King of Poland's, which appears to me preferable to all others.

In treating upon this subject, I shall first expose the errors and defects of the present practice, before I recommend any change or innovation in it.

Although we excel the ancients in fortifications, yet we are far from having arrived at that perfection, which this branch of the military art will admit. With regard to myself, I am not so vain as to think that I am possessed of any uncommon share of knowledge in it; nevertheless, I am not to be imposed upon by the exalted names of Messieurs de Vauban and Coehorn, who have consumed immense sums in fortifying places, without having made any addition to their strength; at least, any that was material, or proportioned to what might have been expected; as is
evident

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evident in the circumstance of their having been taken with so much ease and expedition.

We have modern engineers so obscure in themselves as scarcely to be known, who have, notwithstanding, profited by the errors of those two mighty masters, and are infinitely superior to them; but who, at the same time, only hold the medium, as it were, between the deficiency of their practice, and that point of perfection which we should endeavour to arrive at.

Without entering into a miserable detail of all the little works which they have invented, I shall at once discover the capital defect of their system.

They have erected their fortifications in a kind of amphitheatre, in order to be able to fire from every part of them, as if the besieged could make use of a retired work, so long as their own troops occupied another immediately before it: to what purpose therefore are they raised so high? The consequence of which is, that, being thereby so much exposed, the enemy destroys them, as soon as he has finished his second parallel and erected his batteries: a day or two are sufficient to do it. Thus then are all your defences ruined, your cannon dismounted, and this boasted fortification rendered incapable of obstructing the besiegers. For their batteries being low, and firing at an elevation from the horizon, must raze and demolish every thing; as the besieged are therefore discouraged and afraid to shew themselves, the enemy carries on his approaches very fast, and soon arrives upon the glacis. At the covert-way, he, perhaps, meets with some difficulty and obstruction; but as it is only defended by works that have been already much damaged, he soon renders himself master of it, makes lodgements, and raises batteries in it, which totally ruin the defences of the place. If there are any low flanks, batteries are erected upon the salient angles of the ditch; because that, being parallel with those flanks, and they, moreover, very narrow and confined in front, they are presently destroyed. Where there are casemates, likewise, they are stopped up, and the embrasures are in a short time ruined by the artillery. Thus the besieged are no longer in a capacity to prevent the enemy's passage over the ditch.—With regard to a breach, it is
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soon made in a work, let it be ever so high or formidable ; after which the besieged have little more to do, than to withdraw their troops, and to give it up : for, as it is scarped at the gorge, and has only a stair-case or narrow passage into it, it is impracticable to attack it again, when once taken ; and this difficulty of access, at the same time that it renders it irrecoverable to them, serves to fortify and secure the besiegers in it ; the party sent to possess themselves of it is but small, because the enemy knows it must be abandoned ; and, as the defences behind it are levelled and destroyed, they lodge themselves in it without any opposition or loss : instead of which, if the communication between it and the main body of the place was easy, he would be obliged to send a very large force, to make a considerable lodgement, and to sustain a great many assaults in the maintaining of it, which would be attended with the destruction of great numbers of his troops.

These defects having been in part discovered, the grazing fire was introduced, in order to remedy them : but the original imperfection of this plan of construction is such, that the inconvenience must always subsist, for, if from the body of the place you see into the country, and upon the glacis, over your advanced works, the enemy must consequently command as good a view of you, if not a better ; and, although he does not ruin all your defences there, yet he at least prevents your being able to make use of them ; which it is moreover impossible for you to do, without destroying your own troops, so long as you have any in the outworks before them. To what purpose is it, therefore, to have a prospect upon the glacis from the body of the place, since it can be serviceable in no other respect, than to defend those works, which are immediately before it ? for while you remain in possession of the outworks, you are prevented, as I have just above observed, from firing upon the glacis ; during which time the enemy has the advantage of playing his batteries from thence, to level both your detached defences, and those of the main body of the place — If, on the other hand, its fortifications were lower, the besiegers, in order to destroy them, would be obliged to erect fresh batteries against every distinct work, which would prove no easy task in

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the execution ; especially if the works were less spacious, in proportion as they were farther advanced towards the country, and constructed in such a manner as to have communications by which they might be easily attacked again, after they have been carried by the enemy.

When the enemy attacks me, he will, as usual, carry my covert way, and destroy the defence of my counter-guard and lunettes. Yet as long as I have my casemates free in the re entering angle of my counter-guards, how will he be able to pass the ditch, in order to assault them ? Perhaps, it may be answered, that his batteries will destroy them. But this is far from being so easy to accomplish as might be imagined, for he will not be able to plant above two or three pieces of cannon upon the saliant angle of the counterscarp ; and, in carrying on his approaches against the batteries of my casemates, he must sustain a continual fire of an hundred from the bottom of the ditch, and the saliant angles of my counter-guards and lunettes. Will it be therefore practicable for him, exposed both night and day to so dreadful a fire, which it will moreover be impossible for him to put a stop to, to erect his gallery over the ditch ?

It is a maxim in engineering, that one cannot command any situation, without being at the same time commanded by it ; which principle has been hitherto strictly adhered to, without reflecting, that the business is to oblige the enemy to expose himself in places where there is but little ground to occupy ; where he can be overlooked by a larger front than he is able to withstand ; and where it is, moreover, impracticable for him to erect any batteries in his defence.

All this I am enabled to accomplish by means of my open casemates ; for I command the ditch ; and there is no possibility of his raising a battery to play upon, or dismount either those which are thus planted upon the surface of the water, or those of my ravelins, because they are covered by my counter-guard. I can, moreover, repair in the night-time all the damage that may have been done to my casemates ; and if they happen to be blocked up with rubbish, my cannon will be sufficient to open a way through it.

But

OF FORTIFICATION.

But let us suppose, that the besiegers have passed the first ditch, and made a lodgment upon the counter guard: he will there, all of a sudden, discover a vast number of guns, planted en barbette, which will fire upon him on every side, in a situation where it will be impossible for him to erect batteries to defend himself; and where he will be exposed to the defences of my ravelins, which as yet will not have sustained the least damage. In what manner, therefore, can he avail himself of the possession of this work? For, having only a foot or two of earth above the beams, and being likewise overlooked by two large faces, he will never attempt to bring any artillery into it. Will he plant two pieces of cannon upon the salient angle of the counter-guard, to dismount forty-four that are upon my two faces; together with the 440 large and long pieces, called amusettes, which command him, and force a passage through all gabions, sand-bags, and blinds, that are opposed against them? Where then will he be able to raise his battery? For the passage of the ditch will remain impracticable to him, till he has first made himself master of my casemates. Perhaps it may be observed, that, by setting the miner to them, they may be ruined: but it will be found otherwise in the execution, The only expedients, therefore, which seem to remain, are either to set fire to them, or to destroy the piles under water; both which are equally impossible.

But even grant that he has made himself master of my casemates, I shall soon demolish them with my floating batteries; he will then have only a part of the parapet remaining; and, in order to raise batteries, he will be reduced to the necessity of fetching earth from a great distance for their foundation, which is a work that must be accompanied with no small difficulty and inconvenience.— Nevertheless, let us even suppose him to have surmounted it; for assiduity and time, according to the proverb, will accomplish every thing. Yet, I insist upon it, that he will be obliged to fill up the front of two entire polygons, and the ditch of the counter-guard (for which even the total demolition of it will not furnish sufficient materials) before he can be able to erect the batteries: from which one may form a judgment of the difficulty that must attend the construction of them; and, after having accomplished